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[NAME OF DOCUMENT] SPECIFICATION

[TITLE OF THE INVENTION] CONTENT DATA REPRODUCTION APPARATUS

[SCOPE OF CLAIMS]

[CLAIM 1] A content data reproduction apparatus for reproducing content data, comprising:

a transmission means for transmitting to a registration confirmation apparatus a confirmation request signal which requests the registration confirmation apparatus to confirm whether or not said content data reproduction apparatus has been registered;

a reception means for receiving from said registration confirmation apparatus a registration confirmation signal which informs that said content data reproduction apparatus has been registered;

a storage means for storing content data acquired from content data provision apparatus, said content data provision apparatus providing said content data which is prohibited from being stored in an external section;

a setting means for setting said content data stored in said storage means to reproducible when said reception means receives said registration confirmation signal; and

a reproduction means for reproducing said content data when a reproduction command for said content data is input via an input means while said content data is being set to reproducible by said setting means.

[CLAIM 2] The content data reproduction apparatus according to claim 1, wherein when an operation to purchase said content data which is associated with attribute information informing that said content data is prohibited from being stored in an external device is performed, said content data reproduction apparatus transmits to a content data sales apparatus a purchase notification signal which notifies said content data sales apparatus of an intention to purchase said content data, and then when receiving from said content data sales apparatus a sale notification signal which notifies said content data reproduction apparatus that a sale of said content data is completed, said content data reproduction

apparatus changes said attribute information of said content data such that said attribute information informs that said content data is allowed to be stored in an external section.

[CLAIM 3] The content data reproduction apparatus according to claim 2, wherein said modified attribute information informing that said content data is allowed to be stored in an external section shows permission of outputting said content data to an external section as if said content data is lent out, or permission of outputting said content data to an external section as well as deleting said content data from said storage means.

[CLAIM 4] The content data reproduction apparatus according to claim 1, wherein said transmission means transmits said confirmation request signal to said registration confirmation apparatus each time when said content data reproduction apparatus is powered on.

[CLAIM 5] The content data reproduction apparatus according to claim 1, further comprising readout means for reading out said content data stored in a predetermined storage medium, wherein said storage means stores said content data read by said readout means.

[CLAIM 6] The content data reproduction apparatus according to claim 1, wherein said content data provided from said content data provision apparatus is associated with attribute information informing that said content data is prohibited from being output to an external section.

[CLAIM 7] The content data reproduction apparatus according to claim 6, further comprising:

an output means for outputting content data to an external section; and

an output control means for controlling said output means such that said content data is not output when the attribute information of said content data informs that the outputting of said content data is prohibited.

[CLAIM 8] A registration confirmation apparatus comprising:

a reception means for receiving from content data reproduction apparatus a confirmation request signal which requests said registration confirmation apparatus to confirm whether or not said content data reproduction apparatus has

been registered, said content data reproduction apparatus capable of reproducing content data;

a first storage means for storing apparatus identification information identifying said content data reproduction apparatus, in association with payment status information showing payment status of a user of said content data reproduction apparatus;

a determination means for checking said first storage means based on said apparatus identification information shown by the received confirmation request signal to determine whether or not said content data reproduction apparatus has been properly charged; and

a transmission means for transmitting to said content data reproduction apparatus a registration confirmation signal which informs that said content data reproduction apparatus or said user has been registered, in response to the determination result of said determination means.

[CLAIM 9] The registration confirmation apparatus according to claim 8, further comprising:

a second storage means for storing content data; and

a content data transmission means for transmitting to said content data reproduction apparatus said content data stored in said second storage means, in response to a request from said content data reproduction apparatus.

[CLAIM 10] The registration confirmation apparatus according to claim 9, wherein said content data transmission means transmits to said content data reproduction apparatus said content data which is prohibited from being stored from said content data reproduction apparatus to an external section.

[CLAIM 11] A content data reproduction method of content data reproduction apparatus for reproducing content data, said content data reproduction method comprising:

a first step of transmitting to registration confirmation apparatus a confirmation request signal which requests the registration confirmation apparatus to confirm whether or not said content data reproduction apparatus has been registered;

a second step of receiving from said registration confirmation apparatus a registration confirmation signal which informs that said content data reproduction apparatus has been registered;

a third step of storing in a storage means content data acquired from a content data provision apparatus, said content data provision apparatus providing said content data which is prohibited from being stored in an external section;

a fourth step of setting said content data stored in said storage means to reproducible when said registration confirmation signal is received from said registration confirmation apparatus; and

a fifth step of reproducing said content data when a reproduction command for said content data is input via an input means while said content data is being set to reproducible.

[CLAIM 12] A registration confirmation method of registration confirmation apparatus, said registration confirmation method comprising:

a first step of receiving from content data reproduction apparatus a confirmation request signal which requests to confirm whether or not said content data reproduction apparatus has been registered, said content data reproduction apparatus capable of reproducing content data;

a second step of determining whether or not said content data reproduction apparatus has been properly charged by checking a storage means based on apparatus identification information identifying said content data reproduction apparatus shown in the received confirmation request signal, said storage means storing said apparatus identification information in association with payment status information showing payment status of a user of said content data reproduction apparatus; and

a third step of transmitting to said content data reproduction apparatus a registration confirmation signal which informs that said content data reproduction apparatus has been registered, in response to the determination result of said second step.

[CLAIM 13] A content data reproduction program for causing content data reproduction apparatus which reproduces content data to execute:

a first step of transmitting to registration confirmation apparatus a confirmation request signal which requests the registration confirmation apparatus to confirm whether or not said content data reproduction apparatus has been registered;

a second step of receiving from said registration confirmation apparatus a registration confirmation signal which informs that said content data reproduction apparatus has been registered;

a third step of storing in a storage means content data acquired from content data provision apparatus, said content data provision apparatus providing said content data which is prohibited from being stored in an external section;

a fourth step of setting said content data stored in said storage means to reproducible when said registration confirmation signal is received from said registration confirmation apparatus; and

a fifth step of reproducing said content data when a reproduction command for said content data is input via an input means while said content data is being set to reproducible.

[CLAIM 14] A registration confirmation program for causing a computer to execute:

a first step of receiving from content data reproduction apparatus a confirmation request signal which requests to confirm whether or not said content data reproduction apparatus has been registered, said content data reproduction apparatus capable of reproducing content data;

a second step of determining whether or not said content data reproduction apparatus or said user has been properly charged by checking a storage means based on apparatus identification information identifying said content data reproduction apparatus shown in the received confirmation request signal, said storage means storing said apparatus identification information in association with payment status information showing payment status of a user of said content data reproduction apparatus; and

a third step of transmitting to said content data reproduction apparatus a registration confirmation signal which informs that said content data reproduction

apparatus has been registered, in response to the determination result of said second step.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[TECHNICAL FIELD TO WHICH THE INVENTION BELONGS]

The present invention relates to a content data reproduction apparatus, and is preferably applied to a music data provision system capable of providing various kinds of music data via a communication path such as the Internet to a reproduction device which can reproduce music data of MPEG Audio Layer-3 (MP3) format or the like, for example.

[0002]

[PRIOR ART]

In recent years, a music data provision system, which is capable of providing various kinds of music data via a communication path such as the Internet to a reproduction device which can reproduce music data of MP3 format or the like, is here to stay (see Patent Document 1 and 2, for example).

[0003]

In such music data provision system, for example, a user operates his/her own reproduction device to access web pages of a music data provider, and then selects his/her desired music data from a large number of music data shown on the web page. As a result, the selected music data is downloaded from a music data distribution server of the music data provider via the Internet to the reproduction device.

[Patent Document 1] International Publication No. WO99/42996

[Patent Document 2] Japanese Patent Publication No. 2003-223569

[DISCROSURE OF THE INVENTION]

[PROBLEMS TO BE SOLVED BY THE INVENTION]

[0004]

Incidentally, the conventional music data provision system generally charges for each piece of music data. Accordingly, if a user downloads many pieces of music data, it would cost him/her a lot of money. Therefore, it is

difficult for him/her to freely download various kinds of music data for a trial listen.

[0005]

To solve the problem, the conventional music data provision system allows the reproduction device to download only a part of music data (a climax portion of music, for example) or music data for streaming playback from the music data distribution server for free. Due to this, in the music data provision system, a user can freely obtain various kinds of music data for a trial listen without hurting the interests of the copyright owners who has created the music data or the like.

[0006]

Incidentally, in this case, for example, when the user performs formal purchase operation to formally purchase the music data after the trial listening of the music, the conventional reproduction device has to download from the music data distribution server a formal music data that is different from the part of music data or the music data for streaming playback, which has already been downloaded.

[0007]

Therefore, the reproduction device has to download the formal music data in response to the formal purchase operation after downloading the part of music data or the music data for streaming playback for the user's trial listen. As a result, it is difficult to say music data is efficiently acquired, which is problematic.

[0008]

The present invention has been made in view of the above points and is intended to provide a content data reproduction apparatus capable of acquiring content data more efficiently.

[MEANS FOR SOLVING THE PROBLEMS]

[0009]

To solve the above problem, a content data reproduction apparatus for reproducing content data in accordance with the present invention, comprising: a

transmission means for transmitting to a registration confirmation apparatus a confirmation request signal which requests the registration confirmation apparatus to confirm whether or not the content data reproduction apparatus has been registered; a reception means for receiving from the registration confirmation apparatus a registration confirmation signal which informs that the content data reproduction apparatus has been registered; a storage means for storing content data acquired from content data provision apparatus, the content data provision apparatus providing the content data which is prohibited from being stored in an external section; a setting means for setting the content data stored in the storage means to reproducible if the reception means receives the registration confirmation signal; and a reproduction means for reproducing the content data if a reproduction command for the content data is input via an input means while the content data is being set to reproducible by the setting means.

[0010]

Also, a registration confirmation apparatus in accordance with the present invention comprising: a reception means for receiving from content data reproduction apparatus a confirmation request signal which requests the registration confirmation apparatus to confirm whether or not the content data reproduction apparatus has been registered, the content data reproduction apparatus capable of reproducing content data; a first storage means for storing apparatus identification information identifying the content data reproduction apparatus, in association with payment status information showing payment status of a user of the content data reproduction apparatus; a determination means for checking the first storage means based on the apparatus identification information shown by the received confirmation request signal to determine whether or not the content data reproduction apparatus has been properly charged; and a transmission means for transmitting to the content data reproduction apparatus a registration confirmation signal which informs that the content data reproduction apparatus has been registered, in response to the determination result of the determination means.

[0011]

Accordingly, the content data reproduction apparatus stores the content data which is prohibited from being stored in an external section. And then the content data reproduction apparatus can reproduce the content data only while it is being registered.

[EFFECT OF THE INVENTION]

[0012]

According to the present invention, the content data provided to the content data reproduction apparatus cannot be stored in an external section. In addition, the content data can be reproduced only while the content data reproduction apparatus is being registered. This prevents from hurting the interests of copyright owners or the like. Also, if once the content data is provided to the content data reproduction apparatus by a provision means, the content data reproduction apparatus continues to store the content data. Therefore, the content data reproduction apparatus does not have to repeat a process of downloading the content data. This allows the content data reproduction apparatus to acquire the content data much more efficiently, without hurting the interests of copyright owners or the like.

[BEST MODE FOR CARRYING OUT THE INVENTION]

[0013]

Hereinafter, an embodiment of the present invention will be described in detail with reference to the accompanying drawings.

[0014]

(1) Music Related Service Provision System

(1-1) Configuration of the System

In Fig. 1, the reference numeral 1 denotes a music related service provision system as a whole. The music related service provision system 1 includes a client terminal 2 whose user is under contract to a company operating the music related service provision system 1, a portal server 3 that manages the client terminal 2, and a plurality of servers SV1 through SV5 that provide the client terminal 2 with various kinds of services relating to music

[0015]

In this embodiment, the music data delivery server SV1 provides the client terminal 2 with music data distribution services for distributing music data in formats including ATRAC3 (Adaptive Transform Acoustic Coding 3), AAC (Advanced Audio Coding), WMA (Windows (Registered Trademark) Media Audio), RealAUDIO G2 Music Codec, MP3 (MPEG Audio Layer-3), and the like.

[0016]

A product sales server SV2 provides sales services for selling Compact Discs (CDs), Digital Versatile Discs (DVDs), and the like to users through the client terminal 2.

[0017]

Further, a radio broadcast information delivery server SV3 provides radio broadcast information distribution services for distributing to the client terminal 2 radio broadcast information relating to music and radio program broadcast by radio stations.

[0018]

Further, an Internet radio server SV4 provides Internet radio broadcast services for broadcasting radio broadcast data in a form of streaming distribution to the client terminal 1 via a network NT which is equivalent to the Internet.

[0019]

In addition to above, a fee-charging server SV5 is configured to perform fee-charging processes to charge users various fees in response to requests from the portal server 3 and the like.

[0020]

(1-2) Configuration of Client Terminal 2

(1-2-1) Functional circuit block configuration of Client Terminal 2

Next, a hardware configuration of the client terminal 2 using functional circuit blocks will be described. As shown in Fig. 2, when a user operates an operation input section 20 that is provided on a surface of a casing of the client terminal 2 and is constituted of various kinds of operation buttons, the client terminal 2 detects the operation through the operation input section 20, and

transmits operation input signals corresponding to the operation to an input processing section 21.

[0021]

The input processing section 21 converts the operation input signals supplied from the operation input section 20 into specific operation commands, and transmits them via a bus 22 to a control section 23.

[0022]

The control section 23 controls operation of each circuit connected thereto via the bus 22 based on operation commands and control commands provided by each circuit.

[0023]

A display control section 24 performs digital-to-analog conversion for the video data supplied via the bus 22 to generate analog video signals. The display control section 24 then supplies the analog video signals to the display section 25.

[0024]

The display section 25 is a display device such as a liquid crystal display, and may be mounted on the surface of the casing directly or provided externally.

[0025]

When processing results of the control section 23 or various kinds of video data are supplied as analog video signals via the display control section 24, the display section 25 displays images based on the analog video signals.

[0026]

An audio control section 26 performs digital-to-analog conversion for the audio data supplied via the bus 22, and transmits resultant analog audio signals to a speaker 27. The speaker 27 outputs audio based on the analog audio signals supplied from the audio control section 26.

[0027]

An external recording media recording and reproducing section 28 reads and reproduces content data recorded on external storage media such as CDs and MEMORY STICKs (Registered Trademark of Sony Corporation) constituted of

flash memories covered with exterior cases. Alternatively, the external recording media recording and reproducing section 28 records record-target content data on the external storage media.

[0028]

When the external recording media recording and reproducing section 28 reads video data as content data from an external storage medium, the external recording media recording and reproducing section 28 supplies the video data via the bus 22 to the display control section 24.

[0029]

Accordingly, the display control section 24 converts the video data read as content data from the external storage medium by the external recording media recording and reproducing section 28 to analog video signals, then transmits them to the display section 25.

[0030]

Further, when the external recording media recording and reproducing section 28 reads audio data as content data from an external storage medium, the external recording media recording and reproducing section 28 supplies the read audio data via the bus 22 to the audio control section 26.

[0031]

The audio control section 26 converts the audio data read as content data from the external storage medium by the external recording media recording and reproducing section 28 to analog audio signals, then supplies them to the speaker 27.

[0032]

Further, the control section 23 transmits content data read from external storage media by the external recording media recording and reproducing section 28 via the bus 22 to a storage medium 29 within the client terminal 2 to store the content data in the storage medium 29 (hereinafter, storing content data in the storage medium 29 as described above is referred to as "ripping").

[0033]

When the control section 23 reads, as content data, video data including

image data from the storage medium 29, the control section 23 supplies the video data via the bus 22 to the display control section 24.

[0034]

Further, when the control section 23 reads, as content data, audio data from the storage medium 29, the control section 23 supplies the audio data via the bus 22 to the audio control section 26.

[0035]

In addition, the control section 23 can also read music data from the storage medium 29, and transfers the music data to the external recording media recording and reproducing section 28, thereby causing the external recording media recording and reproducing section 28 to record the music data on external storage media.

[0036]

A broadcast signal reception section 30 receives radio waves transmitted from each broadcast station, and then transmits the radio waves to a tuner section 31.

[0037]

The tuner section 31 extracts, under control of the control section 23, radio broadcast signals of the broadcast frequency corresponding to a radio station specified, for example, via the operation input section out of radio waves received via the broadcast signal reception section 30, and transmits audio data obtained as a result of the above process via the bus 22 to the audio control section 26.

[0038]

The audio control section 26 converts the audio data supplied from the tuner section 31 to analog audio signals, and transmits the analog audio signals to the speaker 27, thereby causing the speaker 27 to output audio of a radio program broadcast from the radio station. In this manner, it is possible to allow a user to listen to the audio of the radio program.

[0039]

Further, the control section 23 can also transmit the audio data obtained

by the tuner section 31 to the storage medium 29 to store the audio data therein, thereby recording audio of a radio program.

[0040]

The control section 23 can also connect with the network NT through a communication control section 32 and a network interface 33 in order, and access the portal server 3 and other servers SV1 through SV4 on the network NT to interchange various kinds of information and data with the portal server 3 and other servers SV1 through SV4.

[0041]

An encoder/decoder section 34 decodes compressed-coded content data received from the network NT via the network interface 33 and the communication control section 32 in order or read from the storage medium 29 or external storage media, and transmits the content data to the display control section 24 or the audio control section 26.

[0042]

Further, the encoder/decoder section 34 performs compression code processes for content data read from external storage media which has been neither compressed nor coded, audio data supplied from the tuner section 31, or the like, and transmits the compressed - coded content data to the storage medium 29.

[0043]

Accordingly, the content data compressed and coded in the encoder/decoder section 34 is stored in the storage medium 29 under control of the control section 23.

[0044]

A copyright management section 35 generates copyright management information corresponding to content data downloaded from the network NT via the network interface 33 and the communication control section 32 in order, or copyright management information corresponding to content data read from external storage media by the external recording media recording and reproducing section 28.

[0045]

The copyright management information generated by the copyright management section 35 is registered in the storage medium 29 in association with the content data, under control of the control section 23.

[0046]

Further, when the copyright management section 35 properly updates copyright management information associated with content data, when performing check-out processes of the content data associated with the copyright management information between the storage medium 29 and a specific external storage medium, or when performing check-in processes of the content data associated with the copyright management information between the storage medium 29 and the specific external storage medium. Accordingly, the copyright management section 35 protects copyright for the content data.

[0047]

A page information generation section 36 interprets page information including eXtensible Markup Language (XML) files or Hyper Text Markup Language (HTML) files received from the network NT via the network interface 33 and the communication control section 32 in order, generates video data which is to be displayed on the display section 25, and transmits the video data to the display control section 24.

[0048]

An authentication processing section 37 performs authentication processes such as transmitting authentication information to the portal server 3 and other servers SV1 through SV4 connected thereto via the communication control section 32 and the network interface 33 in order.

[0049]

An authentication information storage section 38 stores authentication information to be required when the authentication processing section 37 accesses the portal server 3 and other servers SV1 through SV4.

[0050]

A radio broadcasting display control section 39 transmits request signals

for requesting radio broadcast information relating to a radio program being currently received for listening by a user to the radio broadcast information delivery server SV3 corresponding to a radio station broadcasting the radio program being currently received via the communication control section 32 and the network interface 33 in order.

[0051]

As a result, a radio broadcasting display control section 39 receives radio information transmitted from the radio information delivery server SV3 on the network NT via the network interface 33 and the communication control section 32 in order, and transmits the received radio information to the display control section 24 thereby causing the display section 25 to display the radio information constituted of a title of a radio program that is currently received, a title and an artist name of a music that is currently received.

[0052]

(1-2-2) Directory Management

The control section 23 of the client terminal 2 manages content data to be stored in the storage medium 29 using a directory structure as shown in Fig. 3. First, an arbitrary number of "folder" directories are created as a layer under a "root" directory, the number of the "folder" directories is within a predetermined range. The "folder" directories are created so as to correspond to genres to which the content data belongs, or users who own the client terminal 2, for example.

[0053]

An arbitrary number of "album" directories are created as a layer under the "folder" directories, the number of the "album" directories is within a predetermined range. Each "album" directory is created so as to correspond to an album title, for example. One or more "track" files to be contained in an "album" directory are stored as a layer under the "album" directory. Each "track" file corresponds to a piece of music, i.e., a content.

[0054]

The directory management for such content data is performed based on

database files stored in the storage medium 29.

[0055]

(1-3) Functional circuit block configuration of Portal Server 3

Next, a functional circuit block configuration of the portal server 3 will be described by using Fig. 4. A control section 50 within the portal server 3 controls operation of each circuit which is connected via a bus 51.

[0056]

A communication control section 52 interchanges, under control of the control section 50, various kinds of information with the client terminal 2 and other servers SV1 through SV5 via a network interface 53.

[0057]

In a customer database section 54, stores, as customer information, a user identification (ID) of a user who has already signed on a contract with service provider of the music related service provision system 1 and its password information in association with each other. .

[0058]

A page information storage section 55 stores page information being managed by the service provider of the music related service provision system 1, and the like.

[0059]

The page information is described in the XML language or the like, and includes Uniform Resource Locators (URLs) information for accessing the music data delivery server SV1, the product sales server SV2, the radio broadcast information delivery server SV3, the Internet radio server SV4 and the like.

[0060]

When an authentication processing section 56 receives the user ID information and password information transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, the authentication processing section 56 performs, as a user authentication process, a check as to whether or not the received user ID information and password information are registered in the customer database section 54 as customer

information.

[0061]

After completing the user authentication processes, the authentication processing section 56 issues portal authentication result information (equivalent to authentication session ID information described below) showing the result of the user authentication process, and temporarily stores the portal authentication result information in an authentication information storage section 57.

[0062]

When the result of the user authentication processes done by the authentication processing section 56 shows that the user is legitimate, the control section 50 transmits contractor's page information stored in the page information storage section 55 together with the portal authentication result information to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0063]

When the result of the user authentication processes done by the authentication processing section 56 shows that the user is not legitimate, the control section 50 may transmit authentication error information together with authentication failure notification page information showing the failure of authentication and being stored in the page information storage section 55 to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0064]

Further, the authentication processing section 56 receives via the network interface 53 and the communication control section 52 in order, portal authentication result information (equivalent to an authentication ticket described below) obtained by the client terminal 2 from the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3 as a result of an authentication process for a user performed by the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3. After that, the authentication processing

section 56 compares the portal authentication result information with the portal authentication result information associated to the user and which is temporarily stored in the authentication information storage section 57.

[0065]

Accordingly, the authentication processing section 56 performs, as an authentication process for the portal authentication result information received from the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3, a check process for checking whether or not the received portal authentication result information is legitimate, and then returns check result information showing the check result via the communication control section 52 and the network interface 53 to the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3.

[0066]

A frequency information storage section 58 stores a regional code capable of identifying a region, such as a postal code; frequency information showing radio a broadcast frequency of a radio program which can be received in the region identified by the regional code; a name of a radio station (hereinafter, referred to as "radio station name") which broadcasts the radio program; and a call sign which is identification information unique to the radio station in association with each other..

[0067]

A URL storage section 59 stores, in association with each other, a call sign for each radio station which broadcasts a radio program and an URL information with which radio broadcast information (hereinafter, referred to as "now-on-air information") is acquired, the radio broadcast information is information relating to a radio program being currently broadcast from a radio station corresponding to the call sign, and is constituted of a title of the radio program, a name of a piece of music being currently played in the radio program, and the like.

[0068]

(1-4) Functional circuit block configuration of Music Data Delivery Server SV1

Next, a functional circuit block configuration of the music data delivery server SV1 will be described by using Fig. 5. A control section 70 of the music data delivery server SV1 controls operation of each circuit which is connected via a bus 71.

[0069]

A communication control section 72 interchanges, under control of the control section 70, various kinds of information and various kinds of data such as content data with the client terminal 2, the portal server 3, and the like via a network interface 73.

[0070]

A customer database section 74 stores, as customer information, a user ID information of a user who has already signed a contract with a service provider of the music data delivery server SV1 and its password information in association with each other. However, in a case where an authentication processing section 75 has a functions of performing an authentication process for a user based on portal authentication result information issued by the portal server 3 and transmitted from the client terminal 2, the customer database section 74 can be omitted.

[0071]

A page information storage section 76 stores page information for music data distribution and the like, the page information is managed by the music data delivery server SV1, and presents downloadable music data.

[0072]

The music-data-distribution page information is described in the XML language or the like, and is capable of prompting a user of the client terminal 2 to select music data that the user wants to download.

[0073]

When receiving, from the client terminal 2 via the network interface 73 and the communication control section 72 in order, a page information acquisition request signal requesting page information for music data distribution, the control

section 70 transmits the page information for music data distribution stored in the page information storage section 76 to the client terminal 2 via the communication control section 72 and the network interface 73 in order, in response to the page information acquisition request signal.

[0074]

When the authentication processing section 75 receives a user ID information of a user of the client terminal 2 and its password information from the client terminal 2 via the network interface 73 and the communication control section 72 in order, the authentication processing section 75 performs, as a user authentication process, a check as to whether or not the received user ID information and password information are registered in the customer database section 74 as customer information.

[0075]

As a user identification process different from the one which uses user ID information and password information, the authentication processing section 75 receives portal authentication result information (equivalent to an "authentication ticket" described below) issued by the portal server 3 and transmitted from the client terminal 2 via the network interface 73 and the communication control section 72 in order, and then transmits the received portal authentication result information to the portal server 3 via the communication control section 72 and the network interface 73 in order.

[0076]

Then, the authentication processing section 75 receives, from the portal server 3 via the network interface 73 and the communication control section 72 in order, the check results information returned as the result of the authentication process for the portal authentication result information (i.e. the check process described above) which has been performed in response to the portal authentication result information transmitted to the portal server 3, and then checks whether or not the user is a legitimate user who has already signed a contract with a service provider of the music related service provision system 1, based on the received check results information.

[0077]

When completing the user authentication process, the authentication processing section 75 issues server authentication result information (equivalent to "service session ID information" described below) showing the result of the user authentication process.

[0078]

When the result of the user authentication process done by the authentication processing section 75 shows that the user is legitimate, the control section 70 transmits page information for music data distribution that has been prepared for contractors and stored in the page information storage section 76 together with the server authentication result information to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0079]

Whereas, when the result of the user authentication process done by the authentication processing section 75 shows that the user is not legitimate, the control section 70 transmits authentication error information together with authentication failure notification page information showing the failure of authentication and being stored in the page information storage section 76 to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0080]

Incidentally, an authentication information storage section 77 temporarily stores the server authentication result information issued by the authentication processing section 75 and various kinds of authentication information which is to be necessary when the authentication processing section 75 performs a user authentication process for a user of the client terminal 2.

[0081]

A music data storage section 78 stores a plurality of pieces of music data that have been compressed and coded by the ATRAC3, the MP3, or the like as described above and retrieval keys including content ID information of the respective pieces of music data in association with each other.

[0082]

When a download request signal that requests download of a piece of music data that is wanted to be downloaded and includes a retrieval key for searching the music data is received from the client terminal 2 via the network interface 73 and the communication control section 72 in order as the result of the page information for music data distribution transmitted to the client terminal 2, a retrieval section 79 extracts the retrieval key from the received download request signal.

[0083]

The retrieval section 79 then retrieves the piece of music data that is wanted to be downloaded and meets retrieval conditions shown in the retrieval key from a plurality of pieces of music data stored in the music data storage section 78.

[0084]

As a result, the control section 70 transmits the retrieved piece of music data which is wanted to be downloaded to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0085]

Further, at this time, the control section 70 transmits to the fee-charging server SV5 via the communication control section 72 and the network interface 73 in order, fee-charging information which is used for charging a user a fee for the music data downloaded to the client terminal 2, thereby causing the fee-charging server SV5 to perform a fee-charging process for charging a user a fee for the downloaded music data.

[0086]

(1-5) Functional circuit block configuration of Product sales server SV2

Next, a functional circuit block configuration of the product sales server SV2 will be described by using Fig. 6. A control section 90 of the product sales server SV2 controls operation of each circuit which is connected via a bus 91.

[0087]

A communication control section 92 interchanges, under control of the

control section 90, various kinds of information with the client terminal 2, the portal server 3, and the like via a network interface 93.

[0088]

A customer database section 94 stores, as customer information, a user ID information of a user who has already signed a contract with a service provider of the product sales server SV2 and its password information in association with each other. However, in a case where an authentication processing section 95 has a function of performing an authenticate process for a user based on portal authentication result information issued by the portal server 3 and transmitted from, the customer database section 94 can be omitted.

[0089]

A page information storage section 96 stores page information for sales of package media, and the like, the page information is managed by the product sales server SV2, and presents package media such as CDs and DVDs to be sold ("package-media-sales page information").

[0090]

The package-media-sales page information is described in the XML language or the like, and is capable of prompting a user of the client terminal 2 to select package media such as CDs and DVDs which the user wants to buy.

[0091]

When receiving, from the client terminal 2 via the network interface 93 and the communication control section 92 in order, a page information acquisition request signal requesting package-media-sales page information, the control section 90 transmits package-media-sales page information stored in the page information storage section 96 to the client terminal 2 via the communication control section 92 and the network interface 93 in order, in response to the received page information acquisition request signal.

[0092]

When the authentication processing section 95 receives a user ID information of the client terminal 2 and its password information from the client terminal 2 via the network interface 93 and the communication control section 92

in order, the authentication processing section 95 performs, as a user authentication process, a check as to whether or not the received user ID information and password information are registered in the customer database section 94 as customer information.

[0093]

As user authentication process different from the one which uses user ID information and password information, the authentication processing section 95 receives portal authentication result information (equivalent to an "authentication ticket" described below) issued by the portal server 3 and transmitted from the client terminal 2 via the network interface 93 and the communication control section 92 in order, and then transmits the received portal authentication result information to the portal server 3 via the communication control section 92 and the network interface 93 in order.

[0094]

Then, the authentication processing section 95 receives, from the portal server 3 via the network interface 93 and the communication control section 92 in order, the check results information returned as the result of the authentication process for the portal authentication result information (i.e. the check process described above) which has been performed in response to the portal authentication result information transmitted to the portal server 3, and then checks whether or not the user is a legitimate user who has already signed a contract with a service provider of the music related service provision system 1, based on the received check results information.

[0095]

When completing the user authentication process, the authentication processing section 95 issues server authentication result information (equivalent to a "service session ID information" described below) showing the result of the user authentication process.

[0096]

When the result of the user authentication process done by the authentication processing section 95 shows that the user is legitimate, the control

section 90 transmits package-media-sales page information that has been prepared for contractors and stored in the page information storage section 96 together with the server authentication result information to the client terminal 2 via the communication control section 92 and the network interface 93 in order.

[0097]

Whereas, when the result of the user authentication process done by the authentication processing section 95 shows that the user is not legitimate, the control section 90 transmits authentication error information together with authentication failure notification page information showing the failure of authentication and being stored in the page information storage section 96 to the client terminal 2 via the communication control section 92 and the network interface 93 in order.

[0098]

Incidentally, an authentication information storage section 97 temporarily stores the server authentication result information issued by the authentication processing section 95 and various kinds of authentication information which is to be necessary when the authentication processing section 95 performs a user authentication process for a user of the client terminal 2.

[0099]

A package media information storage section 98 stores pieces of package media information relating to package media such as CDs and DVDs for sale and retrieval keys including package medium ID information of the respective pieces of package media information in association with each other. Each piece of package media information relates.

[0100]

When a download request signal that requests download of a piece of package media information is received from the client terminal 2 via the network interface 93 and the communication control section 92 in order as the result of package-media-sales page information transmitted to the client terminal 2, a retrieval section 99 extracts the retrieval key from the received media information request signal.

[0101]

The retrieval section 99 then retrieves the piece of package media information that meets retrieval conditions shown in the retrieval key from a plurality of pieces of package media information stored in the package media information storage section 98.

[0102]

Accordingly, the control section 90 transmits the retrieved piece of package media information to the client terminal 2 via the communication control section 92 and the network interface 93 in order, to show a user the piece of package media information relating to a specific package medium.

[0103]

As a result, when the control section 90 receives, from the client terminal 2 via the network interface 93 and the communication control section 92 in order, a purchase request signal which requests the purchase of the specific package medium as described above, the control section 90 performs a sale process including a shipping procedure to ship the package medium to a user of the client terminal 2.

[0104]

at this time, the control section 70 transmits to the fee-charging server SV5 via the communication control section 92 and the network interface 93 in order, fee-charging information which is used for charging users a fee for the purchased package medium, thereby causing the fee-charging server SV5 to perform a fee-charging process for charging a user a fee for the purchased package medium.

[0105]

After the fee-charging server SV5 completes the fee-charging process for the user, the control section 90 subsequently transmits sale completion page information showing that the sale process of the package medium has been completed to the client terminal 2 via the communication control section 92 and the network interface 93 in order. .

[0106]

(1-6) Functional circuit block configuration of Radio Broadcast Information Delivery Server SV3

Next, a functional circuit block configuration of the radio broadcast information delivery server SV3 will be described by using Fig. 7. A control section 110 of the radio broadcast information delivery server SV3 controls operation of each circuit which is connected via a bus 111.

[0107]

A communication control section 112 interchanges, under control of the control section 110, various kinds of information with the client terminal 2, the portal server 3, and the like via a network interface 113.

[0108]

A customer database section 114 stores, as customer information, a user ID information of a user who has already signed a contract with a service provider of the radio broadcast information delivery server SV3 and its password information in association with each other. However, in a case where an authentication processing section 115 has a function of performing an authenticate process for a user based on portal authentication result information issued by the portal server 3 and transmitted from, the customer database section 114 can be omitted.

[0109]

A page information storage section 116 stores page information for on-air list information distribution, and the like, the page information is managed by the radio broadcast information delivery server SV3, and is used for acquisition of radio broadcast information relating to radio programs which have already been broadcast from a radio station that corresponds to the radio broadcast information delivery server SV3 (hereinafter, this information is referred to as "on-air-list information").

[0110]

The on-air-list-information-distribution page information is described in the XML language or the like, and provides an input box and the like for prompting a user of the client terminal 2 to input a radio program title, date and

time of broadcast of a radio program as a retrieval key of on-air-list information which the user wants to obtain.

[0111]

An on-air-list information storage section 117 stores on-air-list information generated by listing the following information: a title of a radio program which has already been broadcast from a radio station that corresponds to the radio broadcast information delivery server SV3; the start and end time of broadcast of the program; an artist name and title of a piece of music played in the program; the start time of broadcast of the piece of music, and the like.

[0112]

When receiving, from the client terminal 2 via the network interface 113 and the communication control section 112 in order, a page information acquisition request signal requesting on-air-list-information-distribution page information, the control section 110 transmits on-air-list-information-distribution page information stored in the page information storage section 116 to the client terminal 2 via the communication control section 112 and the network interface 113 in order, in response to the received page information acquisition request signal.

[0113]

As a result, the client terminal 2 transmits an on-air-list information request signal requesting download of on-air-list information and including a retrieval key, the retrieval key is input by a user on the on-air-list-information-distribution page information for retrieving on-air-list information which the user wants to obtain. When a retrieval section 118 receives the on-air-list information request signal via the network interface 113 and the communication control section 112 in order, the retrieval section 118 extracts the retrieval key from the on-air-list information request signal.

[0114]

The retrieval section 118 then searches the whole on-air-list information stored in the on-air-list information storage section 117 based on the retrieval key to retrieve, as the on-air-list information which the user wants to obtain, the

predetermined part of the on-air-list information which meets retrieval conditions shown in the retrieval key.

[0115]

As a result, the control section 110 transmits the retrieved on-air-list information to the client terminal 2 via the communication control section 112 and the network interface 113 in order.

[0116]

Further, a now-on-air information storage section 119 stores now-on-air information constituted of the following information: a title of a radio program which is currently broadcast from a radio station that corresponds to the radio broadcast information delivery server SV3; the start and end time of broadcast of the program; an artist name and title of a piece of music being currently played in the program; the start time of broadcast of the piece of music, and the like.

[0117]

When the authentication processing section 115 receives a user ID information of the client terminal 2 and its password information together with a now-on-air information request signal which requests now-on-air information, which are transmitted from the client terminal2 via the network interface 113 and the communication control section 112 in order, the authentication processing section 115 then performs, as a user authentication process, a check as to whether or not the received user ID information and password information are registered in the customer database section 114 as customer information.

[0118]

Further, as user authentication process different from the one which uses user ID information and password information, the authentication processing section 115 receives portal authentication result information (equivalent to an "authentication ticket" described below) issued by the portal server 3 and transmitted from the client terminal 2 via the network interface 113 and the communication control section 112 in order, and then transmits the received portal authentication result information to the portal server 3 via the communication control section 112 and the network interface 113 in order.

[0119]

Then, the authentication processing section 115 receives, from the portal server 3 via the network interface 113 and the communication control section 112 in order, the check results information returned as the result of the authentication process for the portal authentication result information (i.e. the check process described above) which has been performed in response to the portal authentication result information transmitted to the portal server 3, and then checks whether or not the user is a legitimate user who has already signed a contract with a service provider of the music related service provision system 1, based on the received check results information.

[0120]

When completing the user authentication process, the authentication processing section 115 issues server authentication result information (equivalent to a "service session ID information" described below) showing the result of the user authentication process.

[0121]

When the result of the user authentication process done by the authentication processing section 115 shows that the user is legitimate, the control section 110 transmits the now-on-air information stored in the now-on-air information storage section 119 together with the server authentication result information to the client terminal 2 via the communication control section 112 and the network interface 113 in order.

[0122]

Whereas, when the result of the user authentication process done by the authentication processing section 115 shows that the user is not legitimate, the control section 110 transmits authentication error information together with authentication failure notification page information showing the failure of authentication and being stored in the page information storage section 116 to the client terminal 2 via the communication control section 112 and the network interface 113 in order.

[0123]

As described above, when the control section 110 receives a request for now-on-air information from a user, the control section 110 supplies now-on-air information, if the authentication result shows that the user is legitimate. Whereas if the authentication result shows that the user is not legitimate, the control section 110 does not allow the user to receive radio broadcast information delivery services provided by the radio broadcast information delivery server SV3, including a delivery service of the now-on-air information.

[0124]

Incidentally, an authentication information storage section 120 temporarily stores the server authentication result information issued by the authentication processing section 115 and various kinds of authentication information which is to be necessary when the authentication processing section 115 performs a user authentication process for a user of the client terminal 2.

[0125]

(1-7) Brief overview of Processes of Each Server

Next, brief overview of processes between the client terminal 2 and the portal server 3, and processes between the client terminal 2 and other servers such as the music data delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3 will be described by using sequence charts shown in Fig. 8 through Fig. 13.

[0126]

(1-7-1) User Authentication Process between Client Terminal 2 and Portal server 3

First, user authentication processes between the client terminal 2 and the portal server 3 will be described by using Fig. 8.

[0127]

In the client terminal 2 of a user who has signed a contract with a service provider of the music related service provision system 1, when an operation to turn the client terminal 2 on is made, or when an operation input signal detected in the operation input section 20 in response to a pushing operation of a particular operation button of the operation input section 20 made by a user is converted

into an operation command and supplied to the control section 23, the control section 23 starts authentication request processes.

[0128]

At step SP1, upon the start of the authentication request processes, the control section 23 generates a connection request signal that contains authentication session ID information which is temporarily stored in the authentication information storage section 38, and the like, and transmits the generated connection request signal to the portal server 3 via the communication control section 32 and the network interface 33 in order. .

[0129]

The authentication session ID information is information issued by the portal server 3 for identifying each communication connection state (i.e., session) each time when a communication connection between the client terminal 2 and the portal server 3 is established to perform various kinds of processes such as the user authentication process.

[0130]

It should be noted that the authentication session ID information has a certain period of validity (e.g., one minute) utilized for the user authentication processes and the like. The period of validity starts when the portal server 3 issues it.

[0131]

Therefore, if the client terminal 2 that has obtained authentication session ID information from the portal server 3 cannot submit the authentication session ID information to the portal server 3 within the period of validity, the portal server 3 determines that the communication connection identified by the authentication session ID information has been disconnected.

[0132]

Accordingly, the portal server 3 prevents the issued authentication session ID information from being used improperly for the purpose of user authentication processes or the like by someone who has not signed a contract with a service provider the music related service provision system 1.

[0133]

Further, the authentication session ID information temporarily stored in the authentication information storage section 38 was issued by the portal server 3 when a communication connection between the client terminal 2 and the portal server 3 was established for the purpose of user authentication processes or the like.

[0134]

When the connection request signal is transmitted from the client terminal 2, the control section 50 of the portal server 3 receives the connection request signal via the network interface 53 and the communication control section 52 in order, at step SP2. The control section 50 then supplies authentication session ID information and the like contained in the connection request signal to the authentication processing section 56.

[0135]

Then, the authentication processing section 56 performs, under control of the control section 50, a user authentication process based on the authentication session ID information received as the connection request signal from the client terminal 2, and the like. .

[0136]

As a result, if the authentication processing section 56 determines that a user of the client terminal 2 is not legitimate when the authentication session ID information and the like received from the client terminal 2 have expired, or when there are other reasons, the control section 50 transmits authentication error information showing authentication error to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0137]

At step SP3, the control section 23 of the client terminal 2 receives the authentication error information transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order. In response to this, the control section 23 reads out user ID information, password information, and the like stored in the authentication information storage section

38, and then transmits the read user ID information, the password information, and the like to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0138]

At step SP4, the control section 50 of the portal server 3 receives the user ID information, the password information, and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and then supplies the user ID information, the password information, and the like to the authentication processing section 56.

[0139]

The authentication processing section 56 performs as a user authentication process, under control of the control section 50, a check as to whether or not the user ID information, the password information, and the like received from the client terminal 2 are included in customer information registered in the customer database section 54.

[0140]

As a result, if the authentication processing section 56 determines that a user of the client terminal 2 is legitimate, the authentication processing section 56 issues as portal authentication result information, under control of the control section 50, authentication session ID information which identifies the communication connection between the current client terminal 2 and the portal server 3, and the like, and then temporarily stores the issued authentication session ID information and the like in the authentication information storage section 57.

[0141]

The control section 50 then transmits the authentication session ID information and the like issued by the authentication processing section 56 for the client terminal 2 to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0142]

At step SP5, the control section 23 of the client terminal 2 receives the

authentication session ID information and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, and then supplies the authentication session ID information and the like to the authentication processing section 37.

[0143]

Then, the authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information and the like received from the portal server 3 in the authentication information storage section 38.

[0144]

Accordingly, the control section 23 transmits a page information acquisition request signal requests page information from the portal server 3 together with the authentication session ID information and the like that were received from the portal server 3 and temporarily stored in the authentication information storage section 38 to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0145]

At step SP6, the control section 50 of the portal server 3 receives the page information acquisition request signal, the authentication session ID information, and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and then supplies the authentication session ID information, and the like to the authentication processing section 56.

[0146]

The authentication processing section 56 performs, under control of the control section 50, a user authentication process in which the authentication session ID information and the like received from the client terminal 2 are compared with the authentication session ID information and the like that have been issued for the client terminal 2 at step SP4 and temporarily stored in the authentication information storage section 57.

[0147]

As a result, at step SP7, if the user of the client terminal 2 is authenticated as legitimate, the authentication processing section 56 determines that the request for page information received from the client terminal 2 is legitimate, and then extends the period of validity of authentication session ID information and the like.

[0148]

Accordingly, the control section 50 reads the page information requested by the user from the page information storage section 55, and transmits the page information, the authentication session ID information whose period of validity has been extended by the authentication processing section 56, and the like to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0149]

At step SP8, the control section 23 of the client terminal 2 receives the page information, authentication session ID information whose period of validity has been extended, and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, and then supplies the page information to the page information generation section 36, and also supplies the authentication session ID information and the like to the authentication processing section 37.

[0150]

The page information generation section 36 generates video data of a page in which links to the music data delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3 are embedded based on the page information supplied from the control section 23, and supplies the video data to the display control section 24.

[0151]

As a result, the display control section 24 performs digital-to-analog conversion for the video data supplied from the page information generation section 36, and supplies resultant analog video signals to the display section 25, thereby causing the display section 25 to display images of the page of the portal

server 3 based on the analog video signals.

[0152]

Further, the authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information whose period of validity has been extended received from the portal server 3 and the like in the authentication information storage section 38 such that authentication session ID information whose period of validity has not yet been extended and the like are overwritten with the authentication session ID information whose period of validity has been extended and the like. Accordingly, the authentication session ID information and the like that have been temporarily stored at the above- noted step SP5 are updated with the authentication session ID information whose period of validity has been extended and the like.

[0153]

(1-7-2) User Authentication Process between Client Terminal 2 and Servers SV1 through SV3

Next, in Fig. 9, a user authentication process executed between the client terminal 2 and the music data delivery server SV1, the product sales server SV2, or the radio broadcast information delivery server SV3 will be described. .

[0154]

In this case, the user authentication process includes a user authentication process in which the client terminal 2 obtains page information from the portal server 3 as described with reference to Fig. 8, and subsequently accesses the music data delivery server SV1, the product sales server SV2, or the radio broadcast information delivery server SV3 based on links embedded in the page information (hereinafter, this process is referred to as "indirect access authentication process").

[0155]

The user authentication process also includes a user authentication process in which the client terminal 2 directly accesses the music data delivery server SV1, the product sales server SV2, or the radio broadcast information

delivery server SV3 based on URL information and the like previously bookmarked (registered) without obtaining page information from the portal server 3 (hereinafter, this process is referred to as "direct access authentication process").

[0156]

Note that the indirect access authentication process can be executed in any combination of the following: the client terminal 2 and the music data delivery server SV1; the client terminal 2 and the product sales server SV2; and, the client terminal 2 and the radio broadcast information delivery server SV3.

[0157]

In addition, the direct access authentication process can also be executed in any combination of the following: the client terminal 2 and the music data delivery server SV1; the client terminal 2 and the product sales server SV2; and, the client terminal 2 and the radio broadcast information delivery server SV3.

[0158]

The only difference between the indirect access authentication process and the direct access authentication process is the way to obtain URL information which the client terminal 2 uses to access the music data delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3. The indirect access authentication process and the direct access authentication process can be performed in the same procedure after obtaining the URL information.

[0159]

Accordingly, hereinafter, the music data delivery serve SV1 is representatively used as an access destination of the client terminal 2, and the indirect access authentication process and the direct access authentication process are collectively described as one user authentication process, for ease of explanation.

[0160]

First, at step SP10, the control section 23 of the client terminal 2 transmits service session ID information read from the authentication information

storage section 38, and the like, together with a page information acquisition request signal that requests music-data-distribution page information (in the case of the product sales server SV2 or the radio broadcast information delivery server SV3, package-media-sales page information or on-air-list-information-distribution page information) to the music data delivery server SV1 via the communication control section 32 and the network interface 33 in order, based on URL information which is embedded in page information as links or previously bookmarked (registered).

[0161]

The service session ID information is identification information issued by the connected server SV1, SV2 or SV3 for identifying each communication connection state (i.e., session) each time when the communication connection between the client terminal 2 and the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3 is established to perform various kinds of processes such as the user authentication process.

[0162]

It should be noted that the service session ID information has a certain period of validity (e.g., one minute) for the user authentication processes and the like, in the same way as the above-noted authentication session ID information. The period of validity starts when the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3 issues it.

[0163]

Therefore, if the client terminal 2 that has obtained service session ID information from the server SV1, SV2 or SV3 cannot submit the service session ID information to the issued server SV1, SV2 or SV3 within the period of validity, the issued server SV1, SV2 or SV3 determines that the communication connection identified by the service session ID information has been disconnected.

[0164]

Accordingly, the music data delivery server SV1, the product sales server

SV2 or the radio broadcast information delivery server SV3 prevents the issued service session ID information from being used improperly for the purpose of user authentication processes or the like by someone who has not signed a contract with a service provider of the music related service provision system 1.

[0165]

Further, the service session Id information temporarily stored in the authentication information storage section 38 was issued by the music data delivery server SV1, the product sales server SV2 or the radio broadcast information delivery server SV3 when the communication connection between the client terminal 2 and the server SV1, SV2 or SV3 was established for the purpose of user authentication processes or the like.

[0166]

At step SP11, the control section 70 of the music data delivery server SV1 receives the page information acquisition request signal, service session ID information, and the like transmitted by the client terminal 2 via the network interface 73 and the communication control section 72 in order, and supplies the received service session ID information and the like to the authentication processing section 75.

[0167]

The authentication processing section 75 performs, under control of the control section 50, a user authentication process in which the service session ID information and the like received from client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 77.

[0168]

As a result, if the user of the client terminal 2 is not authenticated as legitimate because, for example, the service session ID information received from the client terminal 2 has expired, the authentication processing section 75 determines that the request for music-data-distribution page information received from the client terminal 2 is not legitimate.

[0169]

If the authentication processing section 75 determines that a user of the client terminal 2 is not legitimate, the control section 70 subsequently transmits authentication error information showing authentication error, and a shop code identifying the music data delivery server SV1 to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0170]

At step SP12, the control section 23 of the client terminal 2 receives the authentication error information and shop code transmitted from the music data delivery server SV1 via the network interface 33 and the communication control section 32 in order, recognizes that the user is not authenticated as legitimate in the music data delivery server SV1 based on the received authentication error information, and temporarily stores the shop code received from the music data delivery server SV1 in the authentication information storage section 38.

[0171]

The control section 23 subsequently generates an authentication ticket issuance request signal requesting the issue of an authentication ticket which is used for accessing the music data delivery server SV1, and transmits the generated authentication ticket issuance request signal together with the shop code of the music data delivery server SV1, the authentication session ID information temporarily stored in the authentication information storage section 38, and the like to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0172]

At step SP13, the control section 50 of the portal server 3 receives the authentication ticket issuance request signal, shop code, authentication session ID information, and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and supplies them to the authentication processing section 56.

[0173]

The authentication processing section 56 performs, under control of the control section 50, a user authentication process in which the authentication

session ID information and the like received from the client terminal 2 are compared with the authentication session ID information and the like temporarily stored in the authentication information storage section 57.

[0174]

As a result, if the user of the client terminal 2 is not authenticated as legitimate because, for example, the authentication session ID information received from the client terminal 2 has expired, the authentication processing section 56 determines that the request for authentication ticket received from the client terminal 2 is not legitimate.

[0175]

If the authentication processing section 56 determines that a user of the client terminal 2 is not legitimate, the control section 50 subsequently transmits authentication error information showing authentication error to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0176]

Whereas if a user of the client terminal 2 is authenticated as legitimate because, for example the authentication session ID information received from the client terminal 2 has not expired, the authentication processing section 56 determines that the request for authentication ticket received from the client terminal 2 is legitimate.

[0177]

When the authentication processing section 56 authenticates a user of the client terminal 2 as legitimate, the control section 50 proceeds to step SP18 which is described below.

[0178]

At step SP14, upon receiving the authentication error information transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, the control section 23 of the client terminal 2 then reads user ID information, password information and the like stored in the authentication information storage section 38, and transmits the read

user ID information, the password information and the like to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0179]

At step SP15, the control section 50 of the portal server 3 receives the user ID information, password information and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and supplies the user ID information, the password information and the like to the authentication processing section 56.

[0180]

Accordingly, the authentication processing section 56 performs, under control of the control section 50, a user authentication process in which whether or not the user ID information, password information and the like received from the client terminal 2 are included in customer information registered in the customer database section 54 is checked.

[0181]

As a result, if a user of the client terminal 2 is authenticated as legitimate, the authentication processing section 56 issue, under control of the control section 50, authentication session ID information for the current communication connection state between the client terminal 2 and the portal server 3, and the like as portal authentication result information, and then temporarily stores the authentication session ID information and the like issued to the client terminal 2 in the authentication information storage section 57.

[0182]

The control section 50 subsequently transmits the authentication session ID information and the like issued to the client terminal 2 by the authentication processing section 56 to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0183]

At step SP16, the control section 23 of the client terminal 2 receives the authentication session ID information and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in

order, and temporarily stores the received authentication session ID information and the like in the authentication information storage section 38 using the authentication processing section 37.

[0184]

The control section 23 then regenerates an authentication ticket issuance request signal which requests the issue of authentication tickets, and transmits the regenerated authentication ticket issuance request signal together with the shop code which has already been temporarily stored in the authentication information storage section 38 and the authentication session ID information and the like being temporarily stored, to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0185]

In the present embodiment, the client terminal 2 temporarily stores the shop code in the authentication information storage section 38. However, this invention is not limited to this. By interchanging the shop code between the client terminal 2 and the portal server 3 while performing the steps of SP12 through SP16, it is possible to transmit the shop code to the portal server 3 without temporarily storing the shop code in the authentication storage section 38 by the client terminal 2.

[0186]

At step SP17, the control section 50 of the portal server 3 receives the authentication ticket issuance request signal, shop code, authentication session ID information and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and supplies them to the authentication processing section 56.

[0187]

The authentication processing section 56 performs, under control of the control section 50, a user authentication process in which the authentication session ID information and the like received from the client terminal 2 are compared with the authentication session Id information and the like that have already been temporarily stored in the authentication information storage section

57.

[0188]

If a user of the client terminal 2 is authenticated as legitimate because, for example, the authentication session ID information and the like received from the client terminal 2 has not expired yet, the authentication processing section 56 determines that the request for authentication tickets received from the client terminal 2 is legitimate.

[0189]

Then, if the authentication processing section 56 authenticates a user of the client terminal 2 as legitimate, the control section 50 proceeds to step SP18.

[0190]

At step SP18, the authentication processing section 56 issues, under control of the control section 50, an authentication ticket and the like as portal authentication result information that allows the client terminal 2 to access the music data delivery server SV1 which corresponds to the shop code based on the shop code and authentication ticket issuance request signal received from the client terminal 2 at the above-noted step SP17.

[0191]

The authentication processing section 56 temporarily stores, under control of the control section 50, the issued authentication ticket and the like in the authentication information storage section 57, and extends the period of validity of authentication session ID information and the like that have been issued to the client terminal 2.

[0192]

Accordingly, the control section 50 transmits the authentication ticket, together with the authentication session ID information whose period of validity has been extended by the authentication processing section 56 and the like to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0193]

At step SP19, the control section 23 of the client terminal 2 receives the

authentication ticket, authentication session ID information whose period of validity has been extended, and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, and supplies the received authentication session ID information to the authentication processing section 37.

[0194]

Then, the control section 23 transmits the authentication ticket and the like received from the portal server 3 together with an authentication request signal to the music data delivery server SV1 via the communication control section 32 and the network interface 33 in order.

[0195]

Further, at this time, the authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information whose period of validity has been extended and the like received from the portal server 3 in the authentication information storage section 38 such that authentication session ID information whose period of validity has not yet been extended and the like are overwritten with the authentication session ID information whose period of validity has been extended and the like. Accordingly, the authentication session ID information and the like that have been temporarily stored at the above-noted step SP16 are updated with the authentication session ID information whose period of validity has been extended, and the like.

[0196]

At step SP20, the control section 70 of the music data delivery server SV1 receives the authentication request signal, authentication ticket and the like transmitted from the client terminal 2 via the network interface 73 and the communication control section 72 in order.

[0197]

The control section 70 then transmits the authentication ticket received from the client terminal 2, together with an authentication ticket confirmation request signal which requests the confirmation of the authentication ticket, and

the like to the portal server 3 via the communication control section 72 and the network interface 73 in order.

[0198]

At step SP21, the control section 50 of the portal server 3 receives the authentication ticket confirmation request signal, authentication ticket, and the like transmitted from the music data delivery server SV1 via the network interface 53 and the communication control section 52 in order, and supplies the received authentication ticket confirmation request signal, authentication ticket, and the like to the authentication processing section 56.

[0199]

In response to the authentication ticket confirmation request signal, the authentication processing section 56 performs, under control of the control section 50, a confirmation process to confirm the authentication ticket received from the music data delivery server SV1, in which the authentication ticket and the like received from the music data delivery server SV1 are compared with the authentication ticket and the like temporarily stored in the authentication information storage section 57.

[0200]

As a result, if it is confirmed that the authentication ticket and the like received from the music data delivery server SV1 are legitimate, the control section 50 transmits confirmation result information to the music data delivery server SV1 via the communication control section 52 and the network interface 53 in order, the confirmation result information showing that the authentication ticket and the like are legitimate.

[0201]

At step SP22, the control section 70 of the music data delivery server SV1 receives the confirmation result information transmitted from the portal server 3 via the network interface 73 and the communication control section 72 in order, and supplies the confirmation result information to the authentication processing section 75.

[0202]

In response to the confirmation result information, the authentication processing section 75 issues, under control of the control section 70, service session ID information for the current communication connection state between the client terminal 2 and the music data delivery server SV1, and the like, as server authentication result information, and then temporarily stores the issued service session ID information and the like in the authentication information storage section 77.

[0203]

The control section 70 transmits the service session ID information and the like issued to the client terminal 2 by the authentication processing section 75 to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0204]

At step SP23, the control section 23 of the client terminal 2 receives the service session ID information and the like transmitted from the music data delivery server SV1 via the network interface 33 and the communication control section 32 in order, and temporarily stores the service session ID information and the like in the authentication information storage section 38 using the authentication processing section 37.

[0205]

Accordingly, the control section 23 transmits a page information acquisition request signal which requests music-data-distribution page information together with the service session ID information and the like received from the music data delivery server SV1 and temporarily stored in the authentication information storage section 38 to the music data delivery server SV1 via the communication control section 32 and the network interface 33 in order.

[0206]

At step SP24, the control section 70 of the music data delivery server SV1 receives the page information acquisition request signal, service session ID information and the like transmitted from the client terminal 2 via the network

interface 73 and the communication control section 72 in order, and supplies the service session ID information and the like to the authentication processing section 75.

[0207]

The authentication processing section 75 performs, under control of the control section 70, a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like issued to the client terminal 2 at the above-noted step SP22 and temporarily stored in the authentication information storage section 77.

[0208]

As a result, if a user of the client terminal 2 is authenticated as legitimate because, for example, the service session ID information and the like received from the client terminal 2 has not expired yet, the authentication processing section 75 determines that the request for music-data-distribution page information received from the client terminal 2 is legitimate.

[0209]

Then, if the authentication processing section 75 authenticates a user of the client terminal 2 as legitimate, the control section 70 proceeds to step SP25.

[0210]

At step SP25, the control section 70 reads the music-data-distribution page information which is requested by a user from the page information storage section 76, and extends the period of validity of the service session ID information and the like issued to the client terminal 2 using the authentication processing section 75.

[0211]

The control section 70 subsequently transmits the music-data-distribution page information read from the page information storage section 76, the service session ID information having its period of validity extended by the authentication processing section 75, and the like to the client terminal 2 via the communication control section 72 and the network interface 73

in order.

[0212]

At step SP26, the control section 23 of the client terminal 2 receives the music-data-distribution page information, the service session ID information whose period of validity has been extended, and the like transmitted from the music data delivery server SV1 via the network interface 33 and the communication control section 32 in order, supplies the music-data-distribution page information to the page information generation section 36, and supplies the service session ID information and the like received from the music data delivery server SV1 to the authentication processing section 37.

[0213]

Accordingly, the authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information whose period of validity has been extended received from the portal server 3 and the like in the authentication information storage section 38 such that authentication session ID information whose period of validity has not yet been extended and the like are overwritten with the authentication session ID information period of validity has been extended and the like. As a result, the authentication session ID information and the like that have been temporarily stored at the above-noted step SP23 are updated with the authentication session ID information whose period of validity has been extended and the like.

[0214]

Further, the page information generation section 36 generates video data based on the music-data-distribution page information, and supplies the generated video data to the display control section 24.

[0215]

The display control section 24 performs digital-to-analog conversion for the video data supplied from the page information generation section 36, and supplies resultant analog video signals to the display section 25, thereby causing the display section 25 to displays image of the music-data-distribution page based on the analog video signals.

[0216]

(1-7-3) Music Related Service Provision Processes

Next, in Fig. 10 through Fig. 13, music related service provision processes will be described. The music related service provision processes are performed when the client terminal 2 receives music data distribution services, product sales services, and radio broadcast information distribution services using music-data-distribution page information, package-media-sales page information, on-air-list-information-distribution page information, respectively, which are obtained during the user authentication processing from the music data delivery server SV1; the product sales server SV2; and the radio broadcast information delivery server SV3, respectively, after completion of the user authentication processes as described with reference to Fig. 9 between the client terminal 2 and the music data delivery server SV1 or the product sales server SV2 and the radio broadcast information delivery server SV3.

[0217]

(1-7-3-1) Music data Distribution Service Provision Process

First, a music data distribution service provision process performed when the client terminal 2 receives the music data distribution service from the music data delivery server SV1 will be described by using Fig. 10.

[0218]

At step SP30, when a control command which selects a part of the music-data-distribution page displayed as an image on the display section 25 is input from the input processing section 21, the control section 23 of the client terminal 2 generates a download request signal that requests the download of music data which a user wants to be downloaded, in response to the input control command.

[0219]

The control section 23 then transmits the download request signal, together with the service session ID information that has already been issued by the music data delivery server SV1 and temporarily stored in the authentication information storage section 38, and the like to the music data delivery server SV1

via the communication control section 32 and the network interface 33 in order.

[0220]

At step SP31, the control section 70 of the music data delivery server SV1 receives the download request signal, service session ID information and the like transmitted from the client terminal 2 via the network interface 73 and the communication control section 72 in order, and supplies the received service session ID information and the like to the authentication processing section 75.

[0221]

Accordingly, the authentication processing section 75 performs, under control of the control section 70, a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 77.

[0222]

As a result, if the authentication processing section 75 authenticates that a user of the client terminal 2 who has requested the download of music data is legitimate, the control section 70 proceeds to step SP32.

[0223]

At step SP32, the retrieval section 79 retrieves, based on a retrieval key contained in the download request signal, a piece of music data corresponding to retrieval conditions shown in the retrieval key from a plurality of pieces of music data stored in the music data storage section 78.

[0224]

When the piece of music data is retrieved by the retrieval section 79,, the control section 70 extends the period of validity of the service session ID information and the like that have been issued to the client terminal 2 using the authentication processing section 75, and then proceeds to step SP33.

[0225]

At step SP33, the control section 70 reads the music data that the user wants to download retrieved by the retrieval section 79 from the music data storage section 78., and transmits the music data together with the service session

ID information whose period of validity has been extended by the authentication processing section 75, and the like to the client terminal 2 via the communication control section 72 and the network interface 73 in order.

[0226]

At step SP34, the control section 23 of the client terminal 2 receives the music data that the user wants to download, the service session ID information whose period of validity has been extended, and the like transmitted from the music data delivery server SV1 via the network interface 33 and the communication control section 32 in order, stores the received music data in the storage medium 29, and supplies the service session ID information and the like received from the music data delivery server SV1 to the authentication processing section 37.

[0227]

The authentication processing section 37 temporarily stores, under control of the control section 23, the service session ID information whose period of validity has been extended received from the music data delivery server SV1, and the like in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information whose period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that have already been temporarily stored in the authentication information storage section 38 are updated.

[0228]

As described above, the client terminal 2 is capable of downloading the music data which a user wants to obtain using music data distribution services provided by the music data delivery server SV1.

[0229]

(1-7-3-2) Sales Service Provision Process Procedure

Next, the sales service provision process procedure when the client terminal 2 receives sales services from the product sales server SV2 will be described by using Fig. 11.

[0230]

At step SP40, when a control command which selects a part of the package-media-sales page information displayed as an image on the display section 25 is input from the input processing section 21, the control section 23 of the client terminal 2 generates a media information request signal that requests package media information relating to a specific package media which corresponds to the control commands.

[0231]

The control section 23 then transmits the media information request signal together with the service session ID information and the like that have already been issued by the product sales server SV2 and temporarily stored in the authentication information storage section 38 to the product sales server SV2 via the communication control section 32 and the network interface 33 in order.

[0232]

At step SP41, the control section 90 of the product sales server SV2 receives the media information request signal, the service session ID information and the like transmitted from the client terminal 2 via the network interface 93 and the communication control section 92 in order, and then supplies the received service session ID information and the like to the authentication processing section 95.

[0233]

The authentication processing section 95 performs, under control of the control section 90, performs a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 97.

[0234]

As a result, if the authentication processing section 95 authenticates that a user who has requested the package media information relating to the package media using the client terminal 2 is legitimate, the control section 90 proceeds to step SP42.

[0235]

At step SP42, the retrieval section 99 retrieves, based on a retrieval key contained in the media information request signal, a certain piece of package media information which corresponds to retrieval conditions shown in the retrieval key from a plurality of pieces of package media information stored in the package media information storage section 98.

[0236]

When the retrieval section 99 retrieves the piece of package media information, the control section 90 extends the period of validity of the service session ID information and the like issued to the client terminal 2 using the authentication processing section 95, and then proceeds to step SP43.

[0237]

At step SP43, the control section 90 reads the package media information retrieved by the retrieval section 99 from the package media information storage section 98, and transmits the read package media information, together with the service session ID information whose period of validity has been extended by the authentication processing section 95, and the like to the client terminal 2 via the communication control section 92 and the network interface 93 in order.

[0238]

At step SP44, the control section 23 of the client terminal 2 receives the package media information, the service session ID information whose period of validity has been extended, and the like transmitted from the product sales server SV2 via the network interface 33 and the communication control section 32 in order, supplies the received package media information to the page information generation section 36, and supplies the service session ID information and the like received from the product sales server SV2 to the authentication processing section 37.

[0239]

The authentication processing section 37 temporarily stores, under control of the control section 23, the service session ID information whose period of validity has been extended received from the product sales server SV2, and the

like in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information whose period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that have already been temporarily stored in the authentication information storage section 38 are updated.

[0240]

Further, the page information generation section 36 generates video data based on the package media information supplied from the control section 23, converts the video data to analog video signals using the display control section 24, and supplies the analog video signals to the display section 25.

[0241]

In this manner, after causing the display section 25 to display an image of the package media information based on the analog video signals, the control section 23 proceeds to step SP45.

[0242]

At step SP45, when a control command that requests the purchase of the package media corresponding to the package media information displayed as the image on the display section 25 is input from the input processing section 21, the control section 23 generates a purchase request signal that requests the purchase of the package media in response to the control command.

[0243]

The control section 23 then transmits the purchase request signal, together with the service session ID information that has been received from the product sales server SV2 and temporarily stored in the authentication information storage section 38 (i.e., the service session ID information whose period of validity has been extended), and the like to the product sales server SV2 via the communication control section 32 and the network interface 33 in order

[0244]

At step SP46, the control section 90 of the product sales server SV2 receives the purchase request signal, the service session ID information and the

like transmitted from the client terminal 2 via the network interface 93 and the communication control section 92 in order, and supplies the received service session ID information and the like to the authentication processing section 95.

[0245]

The authentication processing section 95 performs, under control of the control section 90, a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 97.

[0246]

As a result, if the authentication processing section 95 authenticates that the user who requests the purchase of package media using the client terminal 2 is legitimate, the control section 90 proceeds to step SP47.

[0247]

At step SP47, the control section 90 performs a purchase process including a procedure for delivering the package media that the user requested to purchase to the user of the client terminal 2, and transmits fee-charging information used for charging the user a fee for the purchased package media to the fee-charging server SV5 via the communication control section 92 and the network interface 93 in order, thereby causing the fee-charging server SV5 to perform a fee-charging process to charge the user the fee for the purchased package media.

[0248]

Further, the control section 90 extends the period of validity of service session ID information and the like issued to the client terminal 2 using the authentication processing section 95.

[0249]

At step SP48, after completing the fee-charging process, the control section 90 transmits purchase completion page information showing the completion of the purchase process of the package media, together with the service session ID information whose period of validity has been extended by the

authentication processing section 95, and the like to the client terminal 2 via the communication control section 92 and the network interface 93 in order.

[0250]

At step SP49, the control section 23 of the client terminal 2 receives the purchase completion page information, the service session ID information whose period of validity has been extended, and the like transmitted from the product sales server SV2 via the network interface 33 and the communication control section 32 in order, supplies the received purchase completion page information to the page information generation section 36, and supplies the service session ID information and the like received from the product sales server SV2 to the authentication processing section 37.

[0251]

The authentication processing section 37 temporarily stores, under control of the control section 23, the service session ID information whose period of validity has been extended and the like received from the product sales server SV2 in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that has already been temporarily stored in the authentication information storage section 38 is updated.

[0252]

The page information generation section 36 generates video data based on the purchase completion page information supplied from the control section 23, converts the generated video data to analog video signals using the display control section 24, and supplies the analog video signals to the display section 25.

[0253]

Accordingly, the control section 23 causes the display section 25 to display an image of the purchase completion page based on the analog video signals.

[0254]

In this manner, the client terminal 2 can allow a user to purchase package media he/she wants using the sales services provided by the product sales server SV2.

[0255]

(1-7-3-3) On-Air-List Information Distribution Service Provision Process Procedure

Next, a radio broadcast information distribution service provision process procedure when the client terminal 2 receives the radio broadcast information distribution service, especially the on-air-list information distribution service from the radio broadcast information delivery server SV3 will be described by using Fig. 12.

[0256]

At step SP60, when a retrieval key for retrieving on-air-list information that a user wants to obtain is input in an input box disposed on an on-air-list-information-distribution page being displayed as an image on the display section 25 and a control command corresponding to a character string representing the input retrieval key is input from the input processing section 21, the control section 23 of the client terminal 2 generates an on-air-list information request signal that requests the download of the on-air-list information which the user wants to obtain, based on the inputted control commands.

[0257]

The control section 23 then transmits the on-air-list information request signal, together with the service session ID information that has already been issued by the radio broadcast information delivery server SV3 and temporarily stored in the authentication information storage section 38, and the like to the radio broadcast information delivery server SV3 via the communication control section 32 and the network interface 33 in order.

[0258]

At step SP61, the control section 110 of the radio broadcast information delivery server SV3 receives the on-air-list information request signal, the service session ID information and the like transmitted from the client terminal 2 via the

network interface 113 and the communication control section 112 in order, and supplies the received service session ID information and the like to the authentication processing section 115.

[0259]

The authentication processing section 115 performs, under control of the control section 110, a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 120.

[0260]

As a result, if the authentication processing section 115 authenticates that a user who requests on-air-list information using the client terminal 2 is legitimate, the control section 110 proceeds to step SP62.

[0261]

At step SP62, the retrieval section 118 then searches, based on the retrieval key contained in the on-air-list information request signal, the whole on-air-list information stored in the on-air-list information storage section 117 to retrieve, as the on-air-list information which the user wants to obtain, the predetermined part of the on-air-list information which meets retrieval conditions shown in the retrieval key.

[0262]

When the retrieval section 118 retrieves the on-air-list information, the control section 110 extends the period of validity of the service session ID information and the like issued to the client terminal 2 using the authentication processing section 115, and proceeds to step SP63.

[0263]

Then, at step SP63, the control section 110 reads the on-air-list information retrieved by the retrieval section 118 from the on-air-list information storage section 117, and transmits the on-air-list information together with the service session ID information whose period of validity has been extended by the authentication processing section 115, and the like to the client terminal 2 via the

communication control section 112 and the network interface 113 in order.

[0264]

At step SP64, the control section 23 of the client terminal 2 receives the on-air-list information, the service session ID information whose period of validity has been extended, and the like transmitted from the radio broadcast information delivery server SV3 via the network interface 33 and the communication control section 32 in order, supplies the received on-air-list information to the page information generation section 36, and supplies the service session ID information and the like received from the radio broadcast information delivery server SV3 to the authentication processing section 37.

[0265]

The authentication processing section 37 temporarily stores, under control of the control section 23, the service session ID information whose period of validity has been extended and the like received from the radio broadcast information delivery server SV3 in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information whose period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that have already been temporarily stored in the authentication information storage section 38 are updated.

[0266]

Further, the page information generation section 36 generates video data based on the on-air-list information supplied from the control section 23, converts the generated video data to analog video signals using the display control section 24, and supplies the analog video signals to the display section 25, thereby causing the display section 25 to display images based on the analog video signals, i.e., it displays the on-air-list information.

[0267]

As described above, the client terminal 2 can allow a user to obtain the desired on-air-list information using the radio broadcast information distribution

service provided by the radio broadcast information delivery server SV3.

[0268]

(1-7-3-4) Now-On-Air Information Distribution Service Provision Process Procedure

Next, a radio broadcast information distribution service provision process procedure performed when the client terminal 2 receives the radio broadcast information distribution service, especially the now-on-air information distribution service from the radio broadcast information delivery server SV3 will be described by using Fig. 13.

[0269]

It should be noted that a radio broadcast information delivery servers SV3 providing now-on-air information is provided for each radio station (call sign).

[0270]

It should also be noted that, at initial state, the client terminal 2 may not store URL information of radio broadcast information delivery servers SV3 corresponding to each radio station.

[0271]

Therefore, the radio broadcast information distribution service provision process procedure will hereinafter be described with an example in which URL information of each radio broadcast information delivery server SV3 is managed by the portal server 3 for each call sign of a radio station.

[0272]

In addition, in such radio broadcast information distribution service provision process procedure, it is assumed that the client terminal 2 does not have authentication session ID information and the like in the authentication information storage section 38 when requesting frequency information showing broadcast frequencies from the portal server 3 to automatically preset the broadcast frequencies for each radio station. Therefore, first of all the client terminal 2 transmits user ID information, password information, and the like to the portal server 3.

[0273]

At step SP70, if an operation command which requests auto-preset of broadcast frequencies of a radio station is input from the input processing section 21, the control section 23 of the client terminal 2 transmits a frequency information request signal that requests frequency information about broadcast frequencies of the radio station from which the client terminal 2 can receive its broadcasts, an area code input by a user, the user ID information and password information stored in the authentication information storage section 38, and the like to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0274]

At step SP71, the control section 50 of the portal server 3 receives the frequency information request signal, the area code, the user ID information, the password information and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and supplies the user ID information and password information received from the client terminal 2 to the authentication processing section 56.

[0275]

The authentication processing section 56 performs, under control of the control section 50, a user authentication process in which the user ID information, password information and the like received from the client terminal 2 are compared with the customer information registered in the customer database section 54.

[0276]

As a result, if the authentication processing section 56 authenticates that a user of the client terminal 2 is legitimate and determines that the request for frequency information received from the client terminal 2 is legitimate, the authentication processing section 56 issues, under control of the control section 50, authentication session ID information that identifies the current communication connection state between the client terminal 2 and the portal server 3 and the like, and temporarily stores the issued authentication session ID

information and the like in the authentication information storage section 57.

[0277]

When the authentication processing section 56 authenticates that the user is legitimate, the control section 50 subsequently proceeds to step SP72.

[0278]

At step SP72, the control section 50 retrieves, based on the area code received from the client terminal 2, a plurality of pieces of frequency information, radio station names, and call signs that are correspond to the area code from a list of a plurality of pieces of frequency information, radio station names, and call signs within the frequency information storage section 58. The control section 50 then reads the retrieved information in list form.

[0279]

Accordingly, the control section 50 transmits the listed pieces of frequency information, radio station names and call sign read from the frequency information storage section 58 together with the authentication session ID information that has been issued to the client terminal 2 by the authentication processing section 56 at the above-noted step SP71 and the like to the client terminal 2 via the communication control section 52 and the network interface 53 in order.

[0280]

At step SP73, the control section 23 of the client terminal 2 receives the list of the pieces of frequency information, the radio station names, the call signs, the authentication session ID information, and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, supplies the authentication session ID information and the like received from the portal server 3 to the authentication processing section 37, and supplies the list of the pieces of frequency information, the radio station names, and the call signs to the display control section 24.

[0281]

Accordingly, the authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information

and the like received from the portal server 3 in the authentication information storage section 38.

[0282]

Further, the display control section 24 supplies the list of the pieces of frequency information, radio station names and call signs to the display section 25, thereby causing the display section 25 to display the list.

[0283]

Further, the control section 23 stores, based on a selection command input from the input processing section 21, a piece of frequency information, a radio station name and a call sign selected by the selection command in the storage medium 29 (i.e. preset), and proceeds to step SP74.

[0284]

At step SP74, the control section 23 controls, according to a tuning control command input from the input processing section 21, the tuner section 31 to extract radio broadcast signals of a radio broadcast transmitted in a broadcast frequency corresponding to the tuning control command from radio waves.

[0285]

The tuner section 31 therefore extracts radio broadcast signals being transmitted in the broadcast frequency from radio broadcast waves received by the broadcast signal reception section 30, and then performs prescribed reception processes such as decoding, and supplies resultant audio data to audio control section 26.

[0286]

The audio control section 26 therefore converts the audio data supplied from the tuner section 31 to analog audio signals, and supplies the analog audio signals to the speaker 27 to cause the speaker 27 to output audio of the selected radio program.

[0287]

At step SP75, the radio broadcasting display control section 39 reads, under control of the control section 23, a call sign from the storage medium 29, the call sign being stored in the storage medium 29 and associated with the

frequency information showing the broadcast frequency corresponding to the above-noted tuning control commands. The radio broadcasting display control section 39 then transmits the read call sign together with the authentication session ID information that has already been temporarily stored in the authentication information storage section 38, and the like to the portal server 3 via the communication control section 32 and the network interface 33 in order.

[0288]

At step SP76, the control section 50 of the portal server 3 receives the call sign, the authentication session ID information and the like transmitted from the client terminal 2 via the network interface 53 and the communication control section 52 in order, and supplies the received authentication session ID information and the like to the authentication processing section 56.

[0289]

As a result, the authentication processing section 56 performs, under control of the control section 50, a user authentication process in which the authentication session ID information and the like received from the client terminal 2 are compared with the authentication session ID information and the like temporarily stored in the authentication information storage section 57.

[0290]

As a result, if the authentication processing section 56 authenticates that the authentication session ID information and the like received from the client terminal 2 have not expired yet and that a user who transmits the call sign using the client terminal 2 is legitimate, the control section 50 proceeds to step SP77.

[0291]

At step SP77, the control section 50 retrieves, based on the call sign received from the client terminal 2, a piece of URL information corresponding to the call sign from a plurality of pieces of URL information stored in the URL storage section 59.

[0292]

Further, the control section 50 extends the period of validity of the authentication session ID information and the like issued to the client terminal 2

using the authentication processing section 56.

[0293]

The control section 50 then reads the retrieved URL information from the URL storage section 59, and transmits the read URL information together with the authentication session ID information whose period of validity has been extended by the authentication processing section 56, and the like to the client terminal 2 via the communication processing section 52 and the network interface 53 in order.

[0294]

At step SP78, the control section 23 of the client terminal 2 receives the URL information, the authentication session ID information whose period of validity has been extended, and the like transmitted from the portal server 3 via the network interface 33 and the communication control section 32 in order, supplies the received authentication session ID information and the like to the authentication processing section 37, and supplies the URL information to the radio broadcasting display control section 39.

[0295]

The authentication processing section 37 temporarily stores, under control of the control section 23, the authentication session ID information whose period of validity has been extended received from the product sales server SV2, and the like in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information whose period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that have already been temporarily stored in the authentication information storage section 38 are updated.

[0296]

Further, the radio broadcasting display control section 39 temporarily stores, under control of the control section 23, the URL information supplied from the control section 23 and the call sign stored in the storage medium 29 in the storage medium 29 or the like in association with each other.

[0297]

Then, the radio broadcasting display control section 39 transmits, under control of the control section 23, a now-on-air information request signal which requests now-on-air information, together with the service session ID information and the like that have been received from the radio broadcast information delivery server SV3 and temporarily stored in the authentication information storage section 38 to the radio broadcast information delivery server SV3 via the communication control section 32 and the network interface 33 in order, based on the URL information that has been temporarily stored in the storage medium 29 or the like.

[0298]

Here, in the radio broadcast information distribution service provision process procedure, the process of step SP78 in which the now-on-air information request signal, the service session ID information and the like are transmitted from the client terminal 2 to the radio broadcast information delivery server SV3 corresponds to the process of step SP10 described above with respect to Fig. 9.

[0299]

Accordingly, in the radio broadcast information distribution service provision process procedure, subsequent to the process of step SP 78, the client terminal 2, the radio broadcast information delivery server SV3 and the portal server 3 sequentially perform the same user authentication processes as those of step SP11 through SP13 and step SP18 through SP22 as described with respect to Fig. 9, and then proceed to step SP79.

[0300]

At step SP79, the radio broadcasting display control section 39 of the client terminal 2 re-transmits, under control of the control section 23, a now-on-air information request signal, together with the service session ID information and the like that have already received from the radio broadcast information delivery server SV3 and temporarily stored in the authentication information storage section 38 to the radio broadcast information delivery server SV3 via the communication control section 32 and the network interface 33 in

order, according to the URL information that has been temporarily stored in the storage medium 29 or the like. .

[0301]

At step SP80, the control section 110 of the radio broadcast information delivery server SV3 receives the now-on-air information request signal, the service session ID information and the like transmitted from the client terminal 2 via the network interface 113 and the communication control section 112 in order, and supplies the received authentication session ID information and the like to the authentication processing section 115.

[0302]

Accordingly, the authentication processing section 115 performs, under control of the control section 110, a user authentication process in which the service session ID information and the like received from the client terminal 2 are compared with the service session ID information and the like that have already been temporarily stored in the authentication information storage section 120.

[0303]

As a result, if the authentication processing section 115 authenticates that a user of the client terminal2 is legitimate, the authentication processing section 115 determines that the request for now-on-air information received from the client terminal 2 is legitimate.

[0304]

After the authentication processing section 115 authenticates that a user of the client terminal 2 is legitimate, the control section 110 extends the period of validity of the service session ID information and the like issued to the client terminal 2 using the authentication processing section 115, and proceeds to step SP81.

[0305]

At step SP81, the control section 110 reads now-on-air information from the now-on-air information storage section 119, and transmits the read now-on-air information, together with the service session ID information whose period of validity has been extended by the authentication processing section 115, and the

like to the client terminal 2 via the communication control section 112 and the network interface 113 in order.

[0306]

At step SP82, the control section 23 of the client terminal 2 receives the now-on-air information, the service session ID information whose period of validity has been extended and the like transmitted from the radio broadcast information delivery server SV3 via the network interface 33 and the communication control section 32 in order, supplies the received service session ID information and the like to the authentication processing section 37, and supplies the now-on-air information to the radio broadcasting display control section 39.

[0307]

The authentication processing section 37 temporarily stores, under control of the control section 23, the service session ID information whose period of validity has been extended received from the radio broadcast information delivery server SV3, and the like in the authentication information storage section 38 such that service session ID information whose period of validity has not yet been extended and the like are overwritten with the service session ID information whose period of validity has been extended and the like. Accordingly, content of the service session ID information and the like that have already been temporarily stored in the authentication information storage section 38 are updated.

[0308]

Further, the radio broadcasting display control section 39 supplies the now-on-air information supplied from the control section 23 to the display section 25 via the display control section 24 to cause the display section 25 to display the now-on-air information relating to a radio program currently being received.

[0309]

After that, in the radio broadcast information distribution service provision process procedure, the client terminal 2 repeats the request of now-on-air information at step SP79 at a certain interval of time. In addition,

when receiving the request from the client terminal 2, the radio broadcast information delivery server SV3 sequentially performs the processes of step SP80 and SP81.

[0310]

As a result, the client terminal 2 can update now-on-air information including a title, a start time, an end time of a radio program currently being received by the client terminal 2; an artist name and title of a piece of music currently being played in the radio program, and a start time of the broadcast of the piece of music that are displayed on the display section 25 every second.

[0311]

(1-8) Configuration of Hardware Circuit Blocks of Client Terminal 2

(1-8-1) Circuit Configuration

Next, a configuration of hardware circuit block of the client terminal 2 will be described. In the hardware configuration constituted of hardware circuit blocks of the client terminal 2, a part of functions of the client terminal 2 is implemented by software modules as described below.

[0312]

As shown in Fig. 14, when an operation input section 200 constituted of various operation buttons provided on the body surface or a remote controller (not shown) of the client terminal 2is operated by a user, the client terminal 2 detects the operation with the operation input section 200, and supplies an operation input signal corresponding to the operation to an input processing section 201.

[0313]

The input processing section 201 performs a prescribed process for the supplied operation input signal to convert the signal to an operation command, supplies the command via a bus 202 to a CPU (Central Processing Unit) 203.

[0314]

A Read Only Memory (ROM) 204 pre-stores. The CPU 203 reads various programs such as basic programs and application programs previously stored in a ROM (A Read Only Memory) 204 via the bus 202 into a RAM (Random Access Memory) 205. The CPU 203 takes overall control of the client

terminal 2 based on the programs, and performs prescribed arithmetic processes and various processes corresponding to the operation commands supplied from the input processing section 201.

[0315]

A display 206 is a display device such as a liquid crystal display. The display 206 may be directly or externally disposed on the body surface.

[0316]

Processing results generated by the CPU 203 and various video data are supplied to the display 206 via a display processing section 207 as analog video signals. The display 206 displays images based on the analog video signals.

[0317]

A media drive 208 reads content data from, for example, CDs and MEMORY STICKs (Registered Trademark) constituted of flash memories covered with exterior cases, and then reproduces them. Alternatively, the media drive 208 records record-target content data on the CDs or the MEMORY STICKs.

[0318]

When the media drive 208 reads video data as content data from CDs or MEMORY STICKs, the media drive 208 then supplies the read video data to the display processing section 207 via the bus 202.

[0319]

Further, when the media drive 208 reads audio data as content data from CDs or MEMORY STICKs, the media drive 208 then supplies the read audio data to an audio processing section 209.

[0320]

The display processing section 207 performs a digital-to-analog conversion process for the video data supplied via the bus 202, and supplies resultant analog video signals to the display 206 to cause the display 206 to display images based on the analog video signals.

[0321]

Further, the audio processing section 209 performs a digital-to-analog

conversion process for the audio data supplied via the bus 202, and supplies resultant analog audio signals to a 2-channel speaker 210 to cause the speaker 210 to output sound on stereo based on the analog audio signals.

[0322]

In addition, the CPU 203 is configured to supply content data read by the media drive 208 via the bus 202 to a hard disk drive 211 to store the content data in the hard disk drive as content files.

[0323]

The CPU 203 manages the content data stored in the hard disk drive 211 using the directory configuration illustrated by Fig. 3.

[0324]

Also, the CPU 203 is capable of reading the content files stored in the hard disk drive 211 from the hard disk drive 211 as content data.

[0325]

If the CPU 203 reads video data (content data) from the hard disk drive 211, the CPU 203 then supplies the video data to the display processing section 207 via the bus 202.

[0326]

When the CPU 203 reads audio data from the hard disk drive 211 as content data, the CPU 203 supplies the audio data to the audio processing section 209.

[0327]

An antenna 212 receives radio broadcast waves broadcast from each radio station, and supplies the radio broadcast waves to a tuner 213 such as AM/FM tuner.

[0328]

The tuner 213 extracts, under control of the CPU 203, radio broadcast signals of a broadcast frequency that corresponds to a radio station designated by using, for example, the operation input section 200 from the radio broadcast waves received by the antenna 212. The tuner 213 then performs prescribed reception processes for the radio broadcast signals to generate audio data, and

supplies the audio data via the bus 202 to the audio processing section 209.

[0329]

The audio processing section 209 converts the audio data supplied from the tuner 213 to analog audio signals and supplies the analog audio signals to the speaker 210 to cause the speaker 210 to output sound of a radio program broadcast from a radio station, whereby allowing users to listen to sound of the radio program.

[0330]

The CPU 203 can also record sound of radio programs by supplying the audio data obtained by the tuner 213 to the hard disk drive 211 to record them on the hard disk drive 211.

[0331]

Further, the CPU 203 connects with a network NT via a communication processing section 214 and a network interface 215 in order. The CPU 203 therefore can accesses the portal server 3 and other servers SV1 through SV4 on the network NT, and interchanges various data with the portal server 3 and other servers SV1 through SV4.

[0332]

In the present embodiment, the client terminal 2 connects to external devices such as a portable music player via an external device connection section 216. Accordingly, the client terminal 2 can output various kinds of data to the connected external devices.

[0333]

(1-8-2) Configuration of Program Modules

As shown in Fig. 15, program modules implemented in the client terminal 2 that has the hardware configuration described by the hardware circuit blocks shown in Fig. 14 is configured to operate on OS, and interchanges with the portal server 3 and other servers SV1 through SV4.

[0334]

An HTTP (Hyper Text Transfer Protocol) message program 240 interchanges with the portal server 3 and other servers SV1 through SV4 in HTTP

communication. A communicator program 241 is a program module that interchanges data with the HTTP message program 240.

[0335]

A content reproduction module 242 that interprets the codec of contents, and reproduces them and a copyright protection information management module 243 that deals with information relating to copyright protection are disposed above the communicator program 241. An Internet radio channel selection/reproduction module 244 that selects channels of Internet radio and plays the selected channels and a music purchase/reproduction module 245 controls the purchase of music and the reproduction of demo music are disposed above the content reproduction module 242 and the copyright protection information management module 243 respectively.

[0336]

Audio data reproduced by the Internet radio channel selection/reproduction module 244 and the music purchase/reproduction module 245 is transferred to the audio processing section 209 to be output from the speaker 210.

[0337]

A XML browser 246 is disposed above the Internet radio channel selection/reproduction module 244 and the music purchase/reproduction module 245. The XML browser 246 interprets XML files received from various servers, and then displays images on the display 206.

[0338]

For example, a piece of music selected by a user through the XML browser 246 is subjected to a purchasing process by the music purchase/reproduction module 245, and written on the hard disk drive 211 through a hard disk content controller 247.

[0339]

The communicator program 241 connects with an authentication library 248A of a library 248. The authentication library 248A is configured to perform various kinds of authentication processes in cooperation with the portal server 3

and the like.

[0340]

A database access module 249, a content data access module 250, and the hard disk content controller 247 are disposed above the communicator program 241.

[0341]

The database access module 249 accesses various kinds of databases disposed in the hard disk drive 211. The content data access module 250 accesses content data stored in the hard disk drive 211. The hard disk content controller 247 manages content data stored in the hard disk drive 211.

[0342]

A radio broadcast information display module 251 that performs processes for displaying a title and artist name of music broadcast from radio stations and a tuner selection/reproduction /recording module 252 that selects radio stations and records content data as pieces of music received from a radio station on the hard disk drive 211 are disposed above the hard disk content controller 247.

[0343]

For example, pieces of music received from a radio station selected through an audio user interface 253 is supplied via the content data access module 250 to the hard disk drive 211 and written on the hard disk drive 211.

[0344]

The audio data as content data reproduced by the tuner selection/reproduction /recording module 252 is supplied to the audio processing section 209 to be output from the speaker 210.

[0345]

The radio broadcast information display module 251 uses the tuner selection/reproduction /recording module 252 to receive radio broadcast information including now-on-air information about a title and artist name of a piece of music being broadcast by a radio station from the radio broadcast information delivery server SV3 via the HTTP message program 240, and

displays the radio broadcast information on the display 206 through the audio user interface (UI) 253.

[0346]

The radio broadcast information displayed on the display 206 through the audio user interface 253 may be temporarily stored in a clip library 248B of the library 248, and eventually transferred via the database access module 249 to the hard disk drive 211 to be recorded on the hard disk drive 211 in response to an instruction from a user.

[0347]

A CD reproduction module 254 controls the media drive 208 to reproduce CDs.

[0348]

Audio data reproduced from CDs by the CD reproduction module 254 are transferred to the audio processing section 209 to be output the speaker 210.

[0349]

Although not shown, an HDD reproduction module 255 connects with the hard disk content controller 247 and the copyright protection information management module 243.

[0350]

The HDD reproduction module 255 reproduces, under control of the hard disk content controller 247, audio data as content data read from the hard disk drive 211 based on copyright management information supplied from the copyright protection information management module 243.

[0351]

The audio data reproduced by the HDD reproduction module 255 based on the copyright management information is supplied to the audio processing section 209 to be output from the speaker 210.

[0352]

Although not shown, a ripping module 256 connects with the hard disk content controller 247 and the copyright protection information management module 243

[0353]

Accordingly, the ripping module 256 controls the CD reproduction module 254, the copyright protection information management module 243, and the hard disk content controller 247 such that the audio data reproduced from CDs by the CD reproduction module 254 and its copyright management information for managing the audio data are stored (i.e., ripped) in the hard disk drive 211 under control of the hard disk content controller 247.

[0354]

Incidentally, in the program modules as described above, the HTTP message program 240 and the communicator program 241 are program modules that are capable of performing the same functions as the communication control section 32 of the client terminal 2 as described above with respect to Fig. 2.

[0355]

The content reproduction module 242 is a program module that is capable of performing the same function as the encoder/decoder section 34 of the client terminal 2 as described above with respect to Fig. 2.

[0356]

The copyright protection information management module 243 is a program module that is capable of performing the same function as the copyright management section 35 of the client terminal 2 as described above with respect to Fig. 2.

[0357]

The Internet radio channel selection/reproduction module 244 is a program module that is capable of performing the same function as the control section 23 and audio control section 26 of the client terminal 2 as described above with respect to Fig. 2.

[0358]

The music purchase/reproduction module 245 is a program module that is capable of performing the same function as the control section 23 and audio control section 26 of the client terminal 2 as described above with respect to Fig. 2.

[0359]

The XML browser 246 is a program module that is capable of performing the same function as the input processing section 21 and page information generation section 36 of the client terminal 2 as described above with respect to Fig. 2.

[0360]

The hard disk content controller 247, the database access module 249, and the content data access module 250 are program modules that are capable of performing the same functions as the control section 23 of the client terminal 2 as described above with respect to Fig. 2.

[0361]

The authentication library 248A of the library 248 is a program module that is capable of performing the same function as the authentication processing section 37 and the authentication information storage section 38 of the client terminal 2 as described above with respect to Fig. 2.

[0362]

The clip library 248B of the library 248 is a program module that is capable of performing the same function as the control section 23 of the client terminal 2 as described above with respect to Fig. 2.

[0363]

The radio broadcast information display module 251 is a program module that is capable of performing the same function as the radio broadcasting display control section 39 of the client terminal 2 as described above with respect to Fig. 2.

[0364]

The tuner selection/reproduction /recording module 252 is a program module that is capable of performing the same functions as the control section 23, audio control section 26 and tuner section 31 of the client terminal 2 as described above with respect to Fig. 2.

[0365]

The audio user interface 253 can perform the same function as the input

processing section 21, control section 23 and display control section 24 of the client terminal 2 (Fig. 2) do.

[0366]

The CD reproduction module 254 is a program module that is capable of performing the same functions as the audio control section 26 and external recording media recording and reproducing section 28 of the client terminal 2 as described above with respect to Fig. 2.

[0367]

The HDD reproduction module 255 is a program module that is capable of performing the same functions as the control section 23 and audio control section 26 of the client terminal 2 as described above with respect to Fig. 2.

[0368]

The Ripping module 256 is a program module that is capable of performing the same functions as the control section 23, external recording media recording and reproducing section 28 and encoder/decoder section 34 of the client terminal 2 as described above with respect to Fig. 2.

[0369]

Accordingly, in the client terminal 2 illustrated by Fig. 14 having the hardware configuration constituted of the hardware circuit blocks, as described above the CPU 203 can perform, based the various program modules as described above, the same processes as the client terminal 2 having the hardware configuration constituted of the functional circuit blocks as described above with respect to Fig. 2.

[0370]

(1-9) Configuration of Hardware Circuit Blocks of Each Server

Next, each hardware configuration of the portal server 3, the music data delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3 constituted of hardware circuit blocks will be described.

[0371]

It should be noted that, in a case where the portal server 3, the music data

delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3 are constituted of hardware circuit blocks, these servers may have the same hardware configuration since they can perform various kinds of functions by using software.

[0372]

Therefore, using Fig. 16 first, the basic hardware configuration of a server constituted of hardware circuit blocks, which can be applied to any one of the portal server 3, the music data delivery server SV1, the product sales server SV2, and the radio broadcast information delivery server SV3, will be described.

[0373]

In such server, a CPU 270 that controls the server as a whole loads various kinds of programs such as basic programs and application programs into a RAM 274 via a bus 273 and executes those programs to perform various kinds of processes.

[0374]

The hard disk drive 272 can temporarily or permanently store various kinds of data and information including content data and page information which can be published on a network. The hard disk drive 272 can also constitute a database on its hard disk to store various kinds of registration information such as customer information.

[0375]

The CPU 270 reads from the hard disk drive 272 various kinds of data, information and registration information to perform various kinds of processes using them.

[0376]

A network interface 275 connects with the client terminal 2 and other servers via the network NT to interchange various kinds of data and information.

[0377]

In the server, the CPU 270 essentially performs various kinds of processes according to various kinds of programs stored in the ROM 271 or the hard disk drive 272.

[0378]

Therefore, in this server, it is possible to cause the CPU 270 to function in a similar way to the control section 50, communication control section 52, and authentication processing section 56 of the portal server 3 by properly selecting various programs to be stored in the ROM 271 or the hard disk drive 272 in accordance with the functions of the portal server 3 having the hardware configuration constituted of functional circuit blocks as described above with respect to Fig. 4. It is also possible in the server to use the hard disk drive 272 in a similar way to the customer database section 54, page information storage section 55, authentication information storage section 57, frequency information storage section 58, and URL storage section 59 of the portal server 3.

[0379]

Further, in this server, it is possible to cause the CPU 270 to in a similar way to the control section 70, communication control section 72, authentication processing section 75, and retrieval section 79 of the music data delivery server SV1, by properly selecting various programs to be stored in the ROM 271 or the hard disk drive 272 in accordance with the functions of the music data delivery server SV1 having the hardware configuration constituted of functional circuit blocks as described above with respect to Fig. 5. It is also possible in the server to use the hard disk drive 272 in a similar way to the customer database section 74, page information storage section 76, authentication information storage section 77, and music data storage section 78 of the music data delivery server SV1.

[0380]

Further, in this server, it is possible to cause the CPU 270 to in a similar way to the control section 90, communication control section 92, authentication processing section 95, and retrieval section 99 of the product sales server SV2 by properly selecting various programs to be stored in the ROM 271 or the hard disk drive 272 in accordance with the functions of the product sales server SV2 having the hardware configuration constituted of functional circuit blocks as described above with respect to Fig. 6. It is also possible in the server to use the hard disk

drive 272 in a similar way to the customer database section 94, page information storage section 96, authentication information storage section 97, and package media information storage section 98 of the product sales server SV2.

[0381]

Further, in this server, it is possible to cause the CPU 270 to in a similar way to the control section 110, communication control section 112, authentication processing section 115, and retrieval section 118 of the radio broadcast information delivery server SV3 by properly selecting various programs to be stored in the ROM 271 or the hard disk drive 272 in accordance with the functions of having the hardware configuration constituted of functional circuit blocks as described above with respect to Fig. 7. It is also possible in the server to use the hard disk drive 272 in a similar way to the customer database section 114, page information storage section 116, on-air-list information storage section 117, now-on-air information storage section 119 and authentication information storage section 120 of the radio broadcast information delivery server.

[0382]

In this manner, by properly selecting various programs to be stored in the ROM 271 or the hard disk drive 272, the server consisting of hardware circuit blocks can provide the same functions as the portal server 3, music data delivery server SV1, product sales server SV2, and radio broadcast information delivery server SV3 constituted of functional circuit blocks as illustrated by Fig. 4 through Fig. 7.

[0383]

In the above-noted embodiments, the client terminal 2 receives radio broadcasts from radio stations. However, the present invention is not limited to this. For example, the client terminal 2 can receive television broadcasts from television stations, and acquire various kinds of broadcast information relating to television programs from servers on the network NT.

[0384]

In the above-noted embodiments, the client terminal 2 is equipped with the hardware circuit blocks, the functional circuit blocks, and the program

modules. However, the present invention is not limited to this. For example, other terminals such as mobile phones and personal computers also can be equipped with the hardware circuit blocks, the functional circuit blocks, and the program modules. The terminals constituted of the hardware circuit blocks, the functional circuit blocks, and the program modules can perform the same processes as the above-mentioned client terminal 2.

[0385]

(2) Output-Prohibited Music Data Service

(2-1) Contents of the Service

Incidentally, music data downloaded from the music data delivery server SV1 (Fig. 1) to the client terminal 2 (Fig. 14) is associated with attribute information.

[0386]

This attribute information shows each one of the following: that this music data is fully prohibited from being output from the client terminal 2 to external devices; that this music data is allowed to be output from the client terminal 2 to external devices as if it is lent out (i.e., "Checkout"); or that this music data is allowed to be output from the client terminal 2 to external devices and at the same time this music data is deleted from the hard disk drive 31 of the client terminal 2 (i.e., "Move").

[0387]

Hereinafter, the music data with the attribute information directing the client terminal 2 to not output this music data at all will be referred to as "output-prohibited music data". The music data with the attribute information allowing the client terminal 2 to checkout this music data will be referred to as "checkout-able music data". The music data with the attribute information allowing the client terminal 2 to move this music data will be referred to as "move-able music data". The music data with the attribute information allowing the client terminal 2 to checkout and move this music data will be referred to as "checkout-able/move-able music data".

[0388]

In the present embodiment, the music data delivery server SV1 has a number of output-prohibited music data to be downloaded to the client terminal 2. If a user of the client terminal 2 regularly pays a predetermined fixed charge to a service provider of the music data delivery server SV1, he/she can use a service in which he/she can freely download and reproduce the output-prohibited music data (hereinafter, this service is referred to as "Output-prohibited music data service").

[0389]

First, a user inputs registration information which should be registered to use the output prohibited music data service using the operation input section of the client terminal 2. In response to this, the client terminal 2 transmits the input registration information to the music data delivery server SV1.

[0390]

In the present embodiment, the registration information includes the following: the user's user name; terminal identification information identifying the client terminal 2; a credit card number which is required for collecting the fixed charge from the user; and the like.

[0391]

The music data delivery server SV1 registers the registration information received from the client terminal 2 with an internal database. The music data delivery server SV1 regularly performs, in cooperation with the fee-charging server SV5, a fee-charging process for collecting the predetermined fixed charges from the user based on the registration information registered with the database.

[0392]

In this manner, a user of the client terminal 2 is registered in the music data delivery server SV1 as a user who can use the output-prohibited music data service.

[0393]

After the registration is done, the music data delivery server SV1 transmits to the client terminal 2 service usage permission information notifying that a user of the client terminal 2 can use the output-prohibited music data

service.

[0394]

When receiving the service usage permission information, the client terminal 2 goes into a service available mode. The client terminal 2 in the service available mode downloads output-prohibited music data from the music data delivery server SV1 in response to user's download operation, and reproduces the output-prohibited music data in response to user's reproduction operation.

[0395]

Before receiving the service usage permission information from the music data delivery server SV1, the client terminal 2 had been in a service unavailable mode. In the service unavailable mode, the client terminal 2 does not download any output-prohibited music data from the music data delivery server SV1 even if a user performs the download operation. Even if the client terminal 2 in the service unavailable mode already has in the hard disk drive 211 output-prohibited music data which was downloaded by the previous download operation, the client terminal 2 does not reproduce the output-prohibited music data.

[0396]

Each time the client terminal 2 is powered on, the client terminal 2 perform a registration inquiry process to inquire from the music data delivery server SV1 whether or not a user of the client terminal 2 has been registered as a user who can use the output-prohibited music data service. In response to that, the music data delivery server SV1 checks whether or not the user has been registered as a user who can use the output-prohibited music data service, and then notifies the client terminal 2 of the check result.

[0397]

If the client terminal 2 recognizes that the user has not been registered as a user who can use the output-prohibited music data service based on the notification from the music data delivery server SV1, the client terminal 2 goes into the service unavailable mode. By contrast, if the client terminal 2

recognizes that the user has been registered as a user who can use the output-prohibited music data service, the client terminal 2 goes into the service available mode.

[0398]

In this manner, a user who has been registered on the output-prohibited music data service and regularly paying the predetermined fixed charges can freely download output-prohibited music data from the music data delivery server SV1 by using his/her own client terminal 2, and can reproduce the output-prohibited music data. By contrast, a user who has not been registered on the output-prohibited music data service and not paying the fixed charges cannot download output-prohibited music data from the music data delivery server SV1 by using his/her own client terminal 2, and even if its hard disk drive 211 already stores output-prohibited music data which was downloaded before, he/she cannot reproduce them.

[0399]

As a result, only a user who has been paying the predetermined fixed charges can freely download various kinds of music data (output-prohibited music data) from the music data delivery server SV1, and can reproduce them for a trial listen.

[0400]

By the way, when a user makes an operation for outputting output-prohibited music data to external devices (corresponding to checkout operation and move operation) through the operation input section 200 of the client terminal 2, the client terminal 2 checks the attribute information associated with the output-prohibited music data, and recognizes the fact that the outputting of this output-prohibited music data is prohibited. As a result, the client terminal 2 does not perform processes of outputting the output-prohibited music data to external devices.

[0401]

In this manner, the output-prohibited music data, which was downloaded by a user who has been registered on the output-prohibited music data service and

paying the predetermined fixed charges, cannot be output to the outside of the client terminal 2.

[0402]

After that, when the user performs formal purchase operation for the operation input section 200 to formally purchase the output-prohibited music data stored in the hard disk drive 211 of the client terminal 2, the client terminal 2 transmits to the music data delivery server SV1 formal purchase notification information to notify the music data delivery server SV1 of his/her intention to formally purchase the output-prohibited music data.

[0403]

When receiving the formal purchase notification information from the client terminal 2, the music data delivery server SV1 performs fee-charging process in cooperation with the fee-charging server SV5 to charge the user a predetermined fee for the output-prohibited music data. If the fee-charging process is successfully completed, the music data delivery server SV1 notifies the client terminal 2 of the results.

[0404]

When the client terminal 2 recognizes that the predetermined fee has been collected from the user based on the notification from the music data delivery server SV1,, the client terminal 2 rewrites the attribute information of the output-prohibited music data to change the output-prohibited data into checkout-able/move-able music data.

[0405]

In this manner, when the user pays the predetermined fee to formally purchase the output-prohibited music data, the output-prohibited music data which was downloaded from the music data delivery server SV1 is changed into the checkout-able/move-able music data.

[0406]

For example, when the user performs the move operation for moving the checkout-able/move-able music data, the client terminal 2 checks the attribute information associated with the checkout-able/move-able music data, and

recognizes that the move of the checkout-able/move-able music data is permitted. As a result, the client terminal 2 performs move process in which the client terminal 2 outputs the checkout-able/move-able music data to external devices and deletes this data from the hard disk drive 211.

[0407]

In addition, when the user performs an operation for acquiring music data recorded on a music CD (i.e., ripping operation) through the operation input section 200, the client terminal 2 controls the media drive 208 (Fig. 14) to read music data from the music CD, and stores it in the hard disk drive 211.

[0408]

In the present embodiment, the music data read from the music CD and stored in the hard disk drive 211 is associated with the attribute information showing that only checkout is permitted (i.e., checkout-able music data). For example, when the user performs a checkout operation to checkout this checkout-able music data, the client terminal 2 checks the attribute information associated with this music data, and recognizes that the checkout of this music data is permitted. As a result, the client terminal 2 performs checkout process in which the client terminal 2 outputs the checkout-able music data to external devices as if it lends it out.

[0409]

As described above, the music related service provision system 1 includes the client terminal 2 which has a function to reproduce music data, and the music data delivery server SV1 which provides output-prohibited music data to the client terminal 2.

[0410]

The client terminal 2 inquires of the music data delivery server SV1 about the registration at a certain timing (this is when the client terminal 2 is powered on, in this embodiment). In response to that, the music data delivery server SV1 checks whether or not a user of the client terminal 2 has been registered to pay the fixed charges, and notifies the client terminal 2 of the check result.

[0411]

The client terminal 2 allows the output-prohibited music data stored in the hard disk drive 211 to be reproduces only when the client terminal 2 recognizes that the user has been registered to pay the fixed charges based on the notification from the music data delivery server SV1. By contrast, when the user has not been registered to pay the fixed charges, the client terminal 2 does not allow the output-prohibited music data to be reproduced.

[0412]

In this manner, the output-prohibited music data downloaded to the client terminal 2 cannot be output to external devices. In addition, if the user of the client terminal 2 has not been paying the fixed charges, the client terminal 2 does not reproduce this music data. This prevents from hurting the interests of copyright owners or the like.

[0413]

After acquiring output-prohibited music data from the music data delivery server SV1, the client terminal 2 continues to store it in the hard disk drive 211. And then, when the user performs the formal purchase operation, the client terminal 2 rewrites the attribute information associated with the output-prohibited music data being stored in the hard disk drive 211 to change this output-prohibited music data into checkout-able/move-able music data.

[0414]

Accordingly, even if the user performs the formal purchase operation, the client terminal 2 does not have to perform an acquisition process of acquiring formal music data (checkout-able/move-able music data) from the music data delivery server SV1. As a result, the client terminal 2 can acquire music data much more efficiently than the conventional methods.

[0415]

(2-2) Registration Process

Using a sequence chart shown in Fig. 17, the procedure RT1 of the registration process performed when the registration of the output-prohibited music data-service is made will be described.

[0416]

When a user who hopes to use the output-prohibited music data service inputs the registration information, the CPU 203 of the client terminal 2 proceeds to step SP151, and then transmits the registration information to the music data delivery server SV1.

[0417]

When receiving the registration information from the client terminal 2, the CPU 270 of the music data delivery server SV1 proceeds to step SP152, and registers the information in the internal database. In this embodiment, this database is disposed on the hard disk drive 272 of the music data delivery server SV1.

[0418]

The CPU 270 of the music data delivery server SV1 then proceeds to step SP153, and transmits to the client terminal 2 the service usage permission information which permits the user to use the output-prohibited music data service.

[0419]

When receiving the service usage permission information from the music data delivery server SV1, the CPU 203 of the client terminal 2 proceeds to step SP154. At step SP154, the CPU 203 of the client terminal 2 sets a service available/unavailable flag showing whether the output-prohibited music data service is available or not to "available", and goes into the service available mode. In this embodiment, this service available/unable flag is provided as software.

[0420]

When a predetermined day (this is the time when the user of the client terminal 2 should be charged the predetermined fixed charge, and this is for example an end of month) comes, the CPU 270 of the music data delivery server SV1 proceeds to step SP155. And then the CPU 270 of the music data delivery server SV1 reads the user's registration information from the internal database, and transmits it to the fee-charging server SV5. The transmission of the registration information requests the fee-charging server SV5 to perform

fee-charging process.

[0421]

When receiving the registration information from the music data delivery server SV1, the fee-charging server SV5 proceeds to step SP156, and then performs fee-charging process based on the received registration information to charge the user of the client terminal 2 the predetermined fixed charge.

[0422]

After the fee-charging process is successfully completed, the fee-charging server SV5 proceeds to step SP157 to transmit to the music data delivery server SV1 fee-charging completion information which informs that the predetermined fixed charge was successfully collected from the user.

[0423]

When receiving the fee-charging completion information from the fee-charging server SV5, the CPU 270 of the music data delivery server SV1 proceeds to step SP158 to register the fee-charging completion information in the internal database in association with the user's registration information.

[0424]

In this manner, the user of the client terminal 2 is registered in the music data delivery server SV1 so that he/she can use the output-prohibited music data service.

[0425]

(2-3) Registration Inquiry Process

Using a sequence chart shown in Fig. 18, the procedure RT2 of the registration inquiry process will be described.

[0426]

When the client terminal 2 which had been powered off is powered on by the user, the CPU 203 of the client terminal 2 proceeds to step SP161. The CPU 203 of the client terminal 2 then checks whether or not the service available/unavailable flag is set to "available".

[0427]

Affirmative result at step SP161 means that the user was being registered

in the music data delivery server SV1 as a user who can use the output-prohibited music data service during the previous period of the client terminal 2 being powered on. In this case, the CPU 203 of the client terminal 2 proceeds to step SP162.

[0428]

Negative result at step SP161 means that the user was not being registered with the music data delivery server SV1 as a user who can use the output-prohibited music data service during the previous period of the client terminal 2 being powered on. In this case, the CPU 203 of the client terminal 2 proceeds to step SP165 to end the registration inquiry process.

[0429]

The CPU 203 of the client terminal 2 at step SP162 inquires of the music data delivery server SV1 whether or not the user has currently been registered to use the output-prohibited music data service. At this time, the CPU 203 of the client terminal 2 according to the present embodiment transmits terminal identification information identifying the client terminal 2 to the music data delivery server SV1.

[0430]

When receiving from the client terminal 2 the terminal identification information as the result of the inquiry process, the CPU 270 of the music data delivery server SV1 proceeds to step SP163. The CPU 270 of the music data delivery server SV1 then checks the internal database to confirm whether or not the registration information of the user corresponding to the received terminal identification information is being registered.

[0431]

As the result of the confirmation, for example, if the CPU 270 of the music data delivery server SV1 recognizes that the user's registration information has currently been registered, it notifies the client terminal 2 that the output-prohibited music data service is available for the user, because it can collect the predetermined fixed charge from the user.

[0432]

By contrast, for example, if the CPU 270 of the music data delivery server SV1 recognizes that the user's registration information has not been registered, it notifies the client terminal 2 that the output-prohibited music data service is not available for the user, because it cannot collect the predetermined fixed charge from the user.

[0433]

When receiving the notification from the music data delivery server SV1, the CPU 203 of the client terminal 2 proceeds to step SP 164. And then, if the CPU 203 of the client terminal 2 recognizes that the output-prohibited music data service is available for the user based on the notification, the CPU 203 of the client terminal 2 leaves the service available/unavailable flag as "available". By contrast, if the CPU 203 of the client terminal 2 recognizes that the output-prohibited music data service is not available for the user based on the notification, the CPU 203 of the client terminal 2 switches the contents of the service available/unavailable flag to "unavailable".

[0434]

(2-4) Output-Prohibited Music Data Download Process

Using a sequence chart shown in Fig. 19, the procedure RT3 of the output-prohibited music data download process will be described.

[0435]

When the user performs a download operation through the operation input section 200 for downloading output-prohibited music data from the music data delivery server SV1, the CPU 203 of the client terminal 2 proceeds to step SP171, and confirms whether or not the service available/unavailable flag is set to "available".

[0436]

Here, if the CPU 203 of the client terminal 2 recognizes that the service available/unavailable flag is set to "available" and thus determines that it is in the service available mode, the CPU 203 of the client terminal 2 proceeds to step SP172 to request the output-prohibited music data from the music data delivery server SV1.

[0437]

At this time, the CPU 270 of the music data delivery server SV1 proceeds to step SP173. The CPU 270 of the music data delivery server SV1 then reads from the hard disk drive 272 the output-prohibited music data corresponding to the request, and transmits it to the client terminal 2.

[0438]

When receiving the output-prohibited music data from the music data delivery server SV1, the CPU 203 of the client terminal 2 proceeds to step SP174 to store it in the hard disk drive 211.

[0439]

In this manner, the user who can use the output-prohibited music data service can acquire output-prohibited music data from the music data delivery server SV1 by using his/her own client terminal 2.

[0440]

(2-5) Formal Purchase Process

Using a sequence chart shown in Fig. 20, the procedure RT4 of the formal purchase process will be described. The formal purchase process is executed to formally purchase the output-prohibited music data stored in the client terminal 2.

[0441]

When the user performs formal purchase operation for the operation input section 200 to formally purchase the output-prohibited music data stored in the hard disk drive 211, the CPU 203 of the client terminal 2 proceeds to step SP175 to transmit to the music data delivery server SV1 formal purchase notification information to notify the music data delivery server SV1 of his/her intention to formally purchase the output-prohibited music data.

[0442]

When receiving the formal purchase notification information from the client terminal 2, the music data delivery server SV1 proceeds to step SP176, and then requests the fee-charging server SV5 to perform fee-charging process based on the received information to collect the predetermined fee for the

output-prohibited music data from the user.

[0443]

At this time, the fee-charging server SV5 proceeds to step SP177, and performs fee-charging process in response to the request form the music data delivery server SV1. After the fee-charging process is successfully completed, the fee-charging server SV5 notifies the music data delivery server SV1 of this result. The CPU 270 of the music data delivery server SV1 then proceeds to step SP178, and recognizes based on the notification from the fee-charging server SV5 that the predetermined fee was collected from the user. The CPU 270 of the music data delivery server SV1 subsequently notifies the client terminal 2 of this result.

[0444]

When the CPU 203 of the client terminal 2 at step SP179 recognizes based on the notification from the music data delivery server SV1 that the predetermined fee was collected from the user, it rewrites the attribute information associated with the output-prohibited music data. In this manner, the CPU 203 of the client terminal 2 changes the output-prohibited music data into checkout-able/move-able music data.

[0445]

In this manner, if the user pays the predetermined fee for the formal purchase, the output-prohibited music data downloaded from the music data delivery server SV1 changes into the checkout-able/move-able music data.

[0446]

(2-6) Reproduction Process

Using a flowchart shown in Fig. 21, the procedure RT5 of the reproduction process of music data will be described.

[0447]

The CPU 203 of the client terminal 2 proceeds to step SP181 to confirm whether or not the service available/unavailable flag is set to "available", when the user performs a reproduction operation through the operation input section 200 for reproducing each one of the following: the output-prohibited music data

downloaded from the music data delivery server SV1; the checkout-able/move-able music data obtained by the user's formal purchase operation; and the checkout-able music data ripped from a music CD.

[0448]

Negative result at step SP181 means that the client terminal 2 is in the service unavailable mode. In this case, the CPU 203 of the client terminal 2 recognizes that it cannot reproduce the output-prohibited music data because it is in the service unavailable mode, and proceeds to step SP182.

[0449]

The CPU 203 of the client terminal 2 at step SP182 checks whether or not the music data specified by the user's reproduction operation is output-prohibited music data. If affirmative result is obtained at step SP182, the CPU 203 of the client terminal 2 proceeds to step SP183 to display on the display 206 messages informing the user that the client terminal 2 cannot reproduce this output-prohibited music data.

[0450]

Negative result at step SP182 means that the music data specified by the user's reproduction operation is checkout-able/move-able music data obtained by the formal purchase operation, or checkout-able music data ripped from a music CD. In this case, the CPU 203 of the client terminal 2 proceeds to step SP184, and performs reproduction process for the checkout-able/move-able music data or the checkout-able music data to output sound from the speaker 30.

[0451]

In this manner, even if the client terminal 2 is in the service unavailable mode, it performs reproduction process only for the checkout-able/move-able music data obtained by the formal purchase operation and the checkout-able music data ripped from a music CD.

[0452]

By contrast, affirmative result at step SP181 means that the client terminal 2 can also reproduce output-prohibited music data because it is in the service available mode. In this case, the CPU 203 of the client terminal 2

performs reproduction process for the music data (output-prohibited music data, checkout-able/move-able music data, or checkout-able music data) specified by the user's reproduction operation to output sound from the speaker 30.

[0453]

(2-7) Checkout Process

Using a flowchart shown in Fig. 22, the procedure RT6 of the checkout process will be described.

[0454]

When the user performs a checkout operation through the operation input section 200, the CPU 203 of the client terminal 2 proceeds to step SP 185, and confirms whether or not the music data specified by the checkout operation is output-prohibited music data.

[0455]

Negative result at step SP185 means that the music data specified by the checkout operation is checkout-able music data other than output-prohibited music data checkout-able/move-able music data or checkout-able music data. In this case, the CPU 203 of the client terminal 2 proceeds to step SP186, and performs checkout process to output (checkout) the music data specified by the checkout operation to external devices.

[0456]

Affirmative result at step SP185 means that the music data specified by the checkout operation is output-prohibited music data. In this case, the CPU 203 of the client terminal 2 proceeds to step SP187, and does not checkout the music data specified by the checkout operation to external devices.

[0457]

(2-8) Move Process

Using a flowchart shown in Fig. 23, the procedure RT7 of the move process will be described.

[0458]

When the user performs a move operation through the operation input section 200, the CPU 203 of the client terminal 2 proceeds to step SP191, and

confirms whether or not the music data specified by the move operation is move-able.

[0459]

Negative result at step SP191 means that the music data specified by the move operation is not move-able, such as the output-prohibited music data. In this case, the CPU 203 of the client terminal 2 proceeds to step SP192 to display on the display 206 messages informing the user that it cannot move the music data.

[0460]

Affirmative result at step SP191 means that the music data specified by the move operation is move-able, such as checkout-able/move-able music data. In this case, the CPU 203 of the client terminal 2 proceeds to step SP193, and moves the music data to external devices.

[0461]

Incidentally, in this embodiment, during the move process for the move-able music data, the client terminal 2 deletes the music data from the hard disk drive 211, while outputting it to external devices. However, this invention is not limited to this. For example, in the move process for the music data, the client terminal 2 may rewrite the attribute information associated with it to change it into output-prohibited music data, and save it in the hard disk drive 211.

[0462]

(2-9) Operation and Effect

In the above-noted configuration, the music related service provision system 1 includes the client terminal 2 which has a function to reproduce music data, and the music data delivery server SV1 which provides the client terminal 2 with output-prohibited music data.

[0463]

When the client terminal 2 performs the registration inquiry process at a certain timing (this is the time when the client terminal 2 is powered on, in this embodiment), the music data delivery server SV1 confirms whether or not the user of the client terminal 2 has been registered to pay the fixed charges. And

then the music data delivery server SV1 notifies the client terminal 2 of the confirmation result.

[0464]

If the client terminal 2 recognizes based on the notification from the music data delivery server SV1 that the user has been registered to pay the fixed charges, the client terminal 2 allows output-prohibited music data stored in the hard disk drive 211 to be reproduced. By contrast, if the client terminal 2 recognizes that the user has not been registered to pay the fixed charges, the client terminal 2 prohibits the output-prohibited music data from being reproduced.

[0465]

In this manner, the output-prohibited music data downloaded to the client terminal 2 cannot be output. In addition, if the user of the client terminal 2 has not been paying the fixed charges, he/she cannot reproduce this music data. This prevents from hurting the interests of copyright owners or the like.

[0466]

The client terminal 2 saves in the hard disk drive 211 the output-prohibited music data acquired from the music data delivery server SV1. And then, if the user performs a formal purchase operation, the client terminal 2 rewrites the attribute information associated with the output-prohibited music data saved in the hard disk drive 211 to change this music data into checkout-able/move-able music data.

[0467]

Accordingly, even when the user performs a formal purchase operation, the client terminal 2 does not have to perform a process of downloading formal music data (checkout-able/move-able music data) from the music data delivery server SV1. As a result, the client terminal 2 can acquire music data much more efficiently.

[0468]

According to the above-noted configuration, the music data (output-prohibited music data) downloaded to the client terminal 2 cannot be output until it is formally purchased. In addition, this music data can be

reproduced only while the user is being registered to pay the fixed charges. Therefore, this prevents from hurting the interests of copyright owners or the like. Furthermore, the client terminal 2 can acquire music data much more efficiently, since it does not have to repeat a process of downloading music data.

[0469]

(2-10) Other Embodiments

In the above-noted embodiments, the client terminal 2 downloads from the music data delivery server SV1 the output-prohibited music data which includes the attribute information informing that the outputting of this music data is prohibited. However the present invention is not limited to this. For example, the client terminal 2 may download from the music data delivery server SV1 music data which includes attribute information informing that this music data is allowed only to be output in streaming reproduction format. In this case, the client terminal 2 cannot output a copy of the music data to external devices, and cannot move the music data itself. That is to say, the music data which includes the attribute information informing that this music data is allowed only to be output in streaming reproduction format is the one that is prohibited from being stored in external devices. This music data will be also referred to as "external-storing-prohibited music data". Accordingly, the external-storing-prohibited music data downloaded to the client terminal 2 cannot be stored in external devices until it is formally purchased. This prevents from hurting the interests of copyright owners or the like.

[0470]

In the above-noted embodiments, the case where music data is applied as content data. However, the present invention is not limited to this. Video data, program data, or the like can be content data.

[0471]

In the above-noted embodiments, when inquired about the registration by the client terminal 2, the music data delivery server SV1 confirms whether or not the registration information of the user of the client terminal 2 is being registered in the database. And then if the confirmation result shows that the registration

information of the user is being registered, the music data delivery server SV1 determines that the output-prohibited music data service is available for the user, and notifies the client terminal 2 of the result. However, this invention is not limited to this. For example, while the music data delivery server SV1 may confirm whether or not the registration information of the user is being registered in the database in response to the request from the client terminal 2, it may also check the fee-charging completion information (payment status information) corresponding to the registration information. And then if the check result shows that the user is regularly paying the predetermined fixed charges, the music data delivery server SV1 may determine that the output-prohibited music data service is available for the user.

[0472]

In the above-noted embodiments, the client terminal 2 is applied as the content data reproduction apparatus. However, this invention is not limited to this. Devices which can reproduce content data and communicate with the music data delivery server SV1 and the like, such as mobile phones and Personal Digital Assistance (PDA), can be applied as the content data reproduction apparatus.

[0473]

In the above-noted embodiments, the communication processing section 214 and the network interface 215 are applied to the following: a transmission means for transmitting to registration confirmation apparatus (the music data delivery server SV1) a confirmation request signal (the terminal identification information) which requests the registration confirmation apparatus to confirm whether or not the content data reproduction apparatus (the client terminal 2) has been registered; and a reception means for receiving from the registration confirmation apparatus a registration confirmation signal which informs that the content data reproduction apparatus has been registered. However, the present invention is not limited to this, and various other configurations may be applied.

[0474]

In the above-noted embodiments, the hard disk drive 211 is applied as a

storage means for storing content data (output-prohibited music data) acquired from content data provision apparatus (the music data delivery server SV1), the content data provision apparatus providing the content data which is prohibited from being output to an external section. However, the present invention is not limited to this. For example, a semiconductor memory or the like can be applied as the storage means.

[0475]

In the above-noted embodiments, the CPU 203 is applied as the following: a setting means for setting the content data to reproducible; a reproduction means for reproducing the content data if a reproduction command for the content data is input via an input section (the operation input section 200); and an output control means for controlling an external output means (the external device connection section 216) such that the content data is not output from the output means when the attribute information of the content data informs that the outputting of the content data is prohibited. However, the present invention is not limited to this, and various other configurations may be applied.

[0476]

In the above-noted embodiments, the network interface 275 of the music data delivery server SV1 is applied as the following: a reception means for receiving a confirmation request signal; a transmission means for transmitting to the content data reproduction apparatus a registration confirmation signal; and a content data transmission means for transmitting to the content data reproduction apparatus the content data. However, the present invention is not limited to this, and various other configurations may be applied.

[0477]

In the above-noted embodiments, the hard disk drive 272 of the music data delivery server SV1 is applied as the following: a first storage means for storing apparatus identification information (the terminal identification information) identifying the content data reproduction apparatus and payment status information showing the payment status of the user of the content data reproduction apparatus in association with each other; and a second storage

means for storing the content data. However, the present invention is not limited to this, and various other configurations may be applied.

[0478]

In the above-noted embodiments, the CPU 203 of the client terminal 2 follows installed programs (a content data reproduction program), and also the music data delivery server SV1 follows pre-installed programs (a registration confirmation program), to perform each process RT1 through RT7 (Fig. 17 through Fig. 23) in a form of software. However, the present invention is not limited to this. For example, the client terminal 2 and the music data delivery server SV1 may perform each process RT1 through RT7 in a form of hardware.

[0479]

Industrial Applicability

The present invention can be utilized for a music data provision system capable of providing various kinds of music data via a communication path such as the Internet to a reproduction device which can reproduce music data, and the like.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[0480]

[FIG. 1] A schematic diagram showing an overall configuration of a music related service provision system in accordance with an embodiment of the present invention.

[FIG. 2] A block diagram showing a hardware configuration of a client terminal constituted of functional circuit blocks.

[FIG. 3] A schematic diagram showing a directory structure.

[FIG. 4] A block diagram showing a hardware configuration of a portal server constituted of functional circuit blocks.

[FIG. 5] A block diagram showing a hardware configuration of a music data delivery server constituted of functional circuit blocks.

[FIG. 6] A block diagram showing a hardware configuration of a product sales server constituted of functional circuit blocks.

[FIG. 7] A block diagram showing a hardware configuration of a radio

broadcast information delivery server constituted of functional circuit blocks.

[FIG. 8] A sequence chart showing a user authentication process procedure between the client terminal and the portal server.

[FIG. 9] A sequence chart showing a user authentication process procedure between the client terminal and the music data delivery server.

[FIG. 10] A sequence chart showing a music data distribution service provision process procedure.

[FIG. 11] A sequence chart showing a sales service provision process procedure.

[FIG. 12] A sequence chart showing a radio broadcast information (on-air list information) distribution service provision process procedure (1).

[FIG. 13] A sequence chart showing a radio broadcast information (now-on-air information) distribution service provision process procedure (2).

[FIG. 14] A block diagram showing a hardware configuration of a client terminal constituted of the hardware circuit blocks.

[FIG. 15] A schematic diagram showing program modules of the client terminal.

[FIG. 16] A block diagram showing a hardware configuration of servers constituted of hardware circuit blocks.

[FIG. 17] A sequence chart showing a registration process procedure.

[FIG. 18] A sequence chart showing a registration inquiry process procedure.

[FIG. 19] A sequence chart showing an output-prohibited music data download process procedure.

[FIG. 20] A sequence chart showing a formal purchase process procedure.

[FIG. 21] A flowchart showing a reproduction process procedure.

[FIG. 22] A flowchart showing a checkout process procedure.

[FIG. 23] A flowchart showing a move process procedure.

[DESCRIPTION OF REFERENCE NUMERALS]

1 music related service provision system, 2 client terminal, SV1 music data distribution server, SV5 charging server, 203, 270

CPU, 214 communication processing portion, 215, 275 network interface

【書類名】図面

【図１】

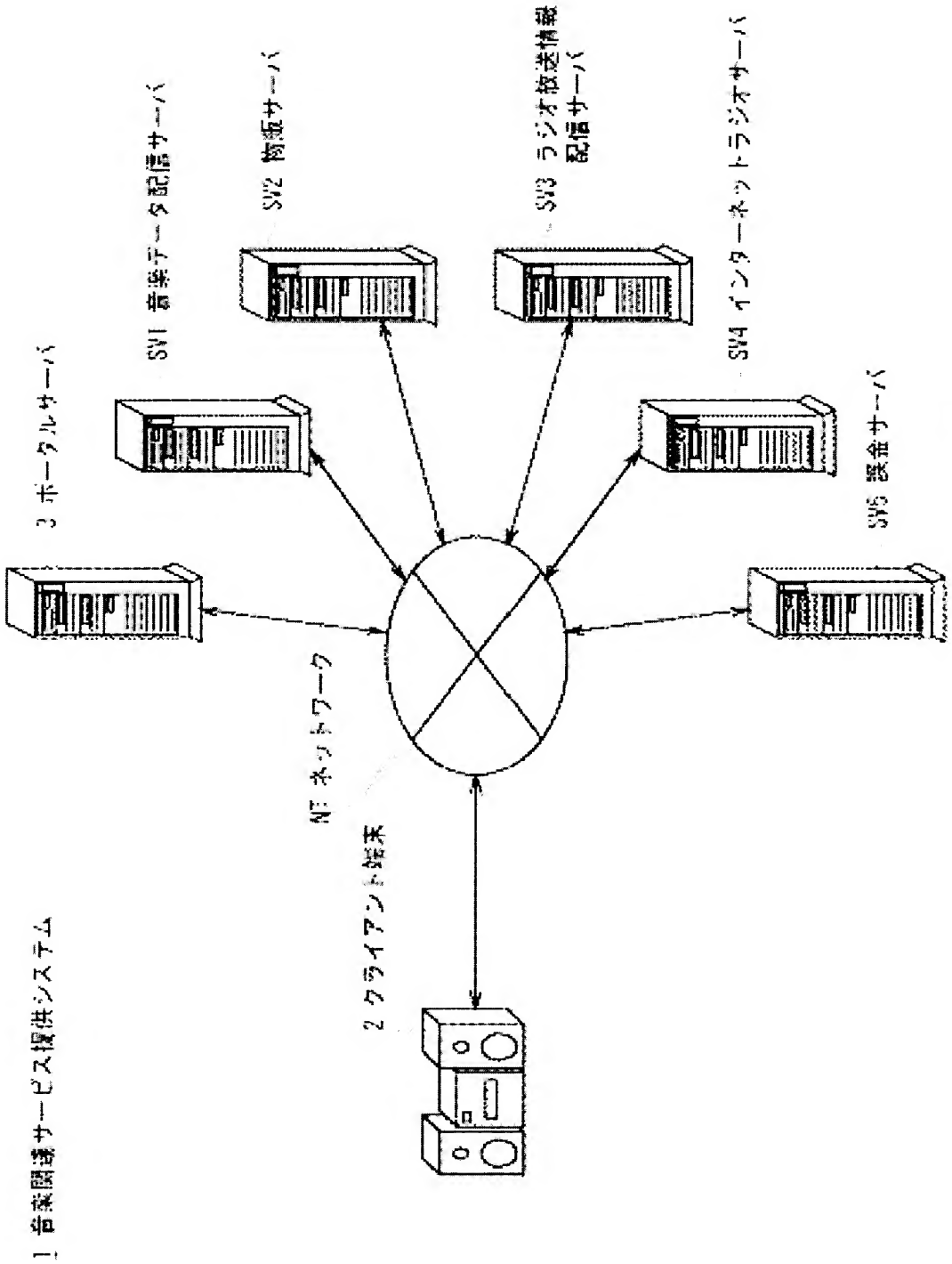

図１　音楽関連サービス提供システムの全体構成

【図２】

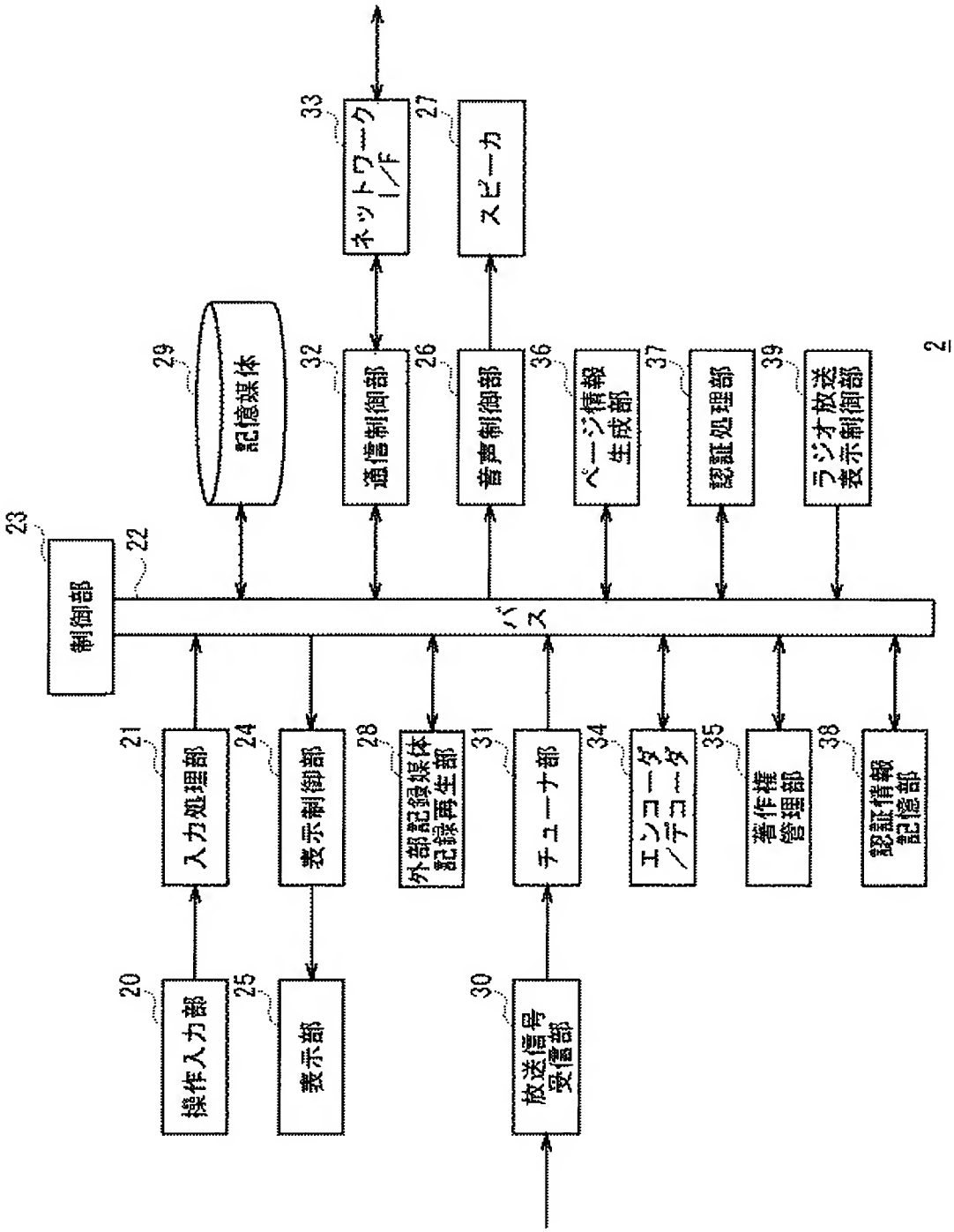

図２　クライアント端末の機能回路ブロックによる構成

【図３】

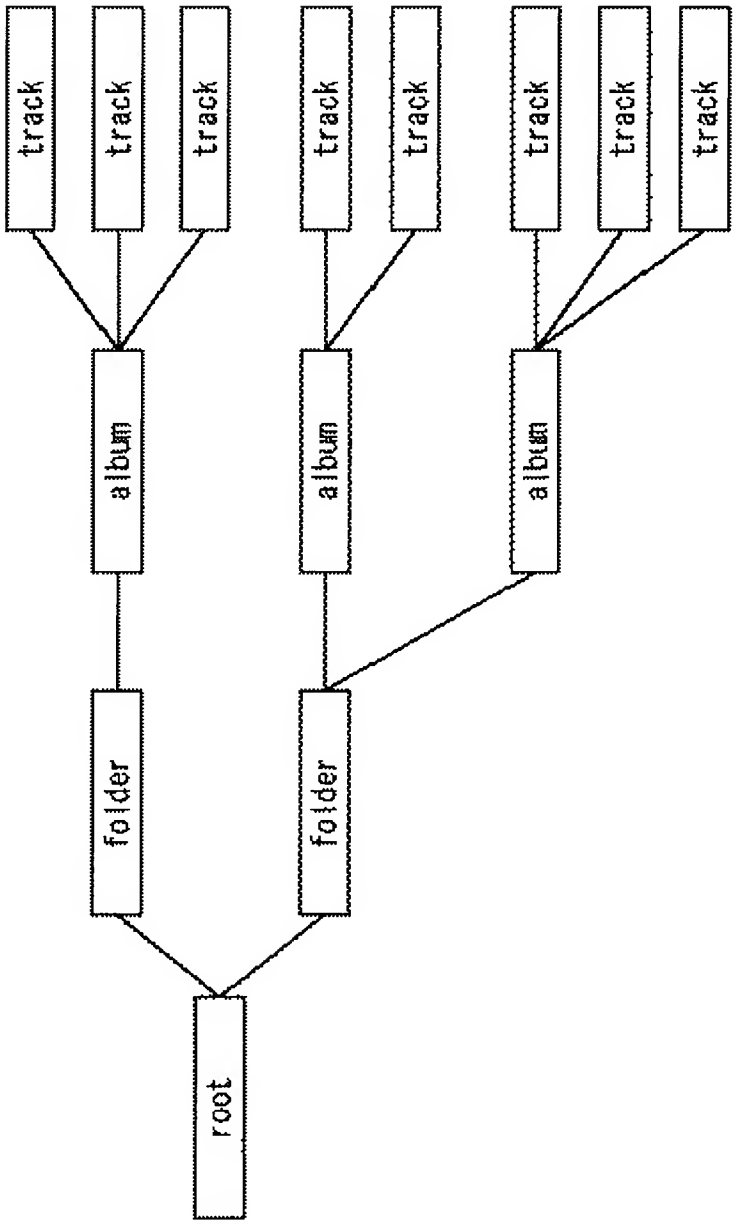

図３　ディレクトリ構成

【図４】

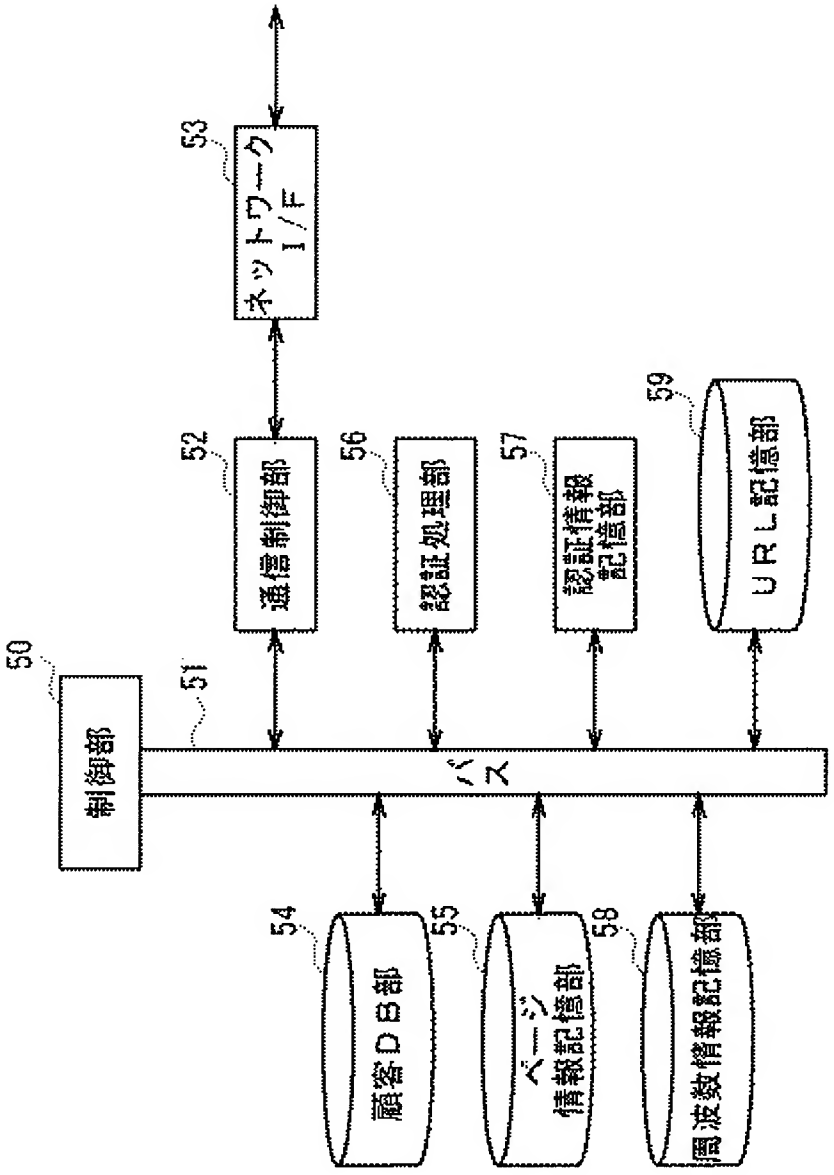

図４　ポータルサーバの構成

【図５】

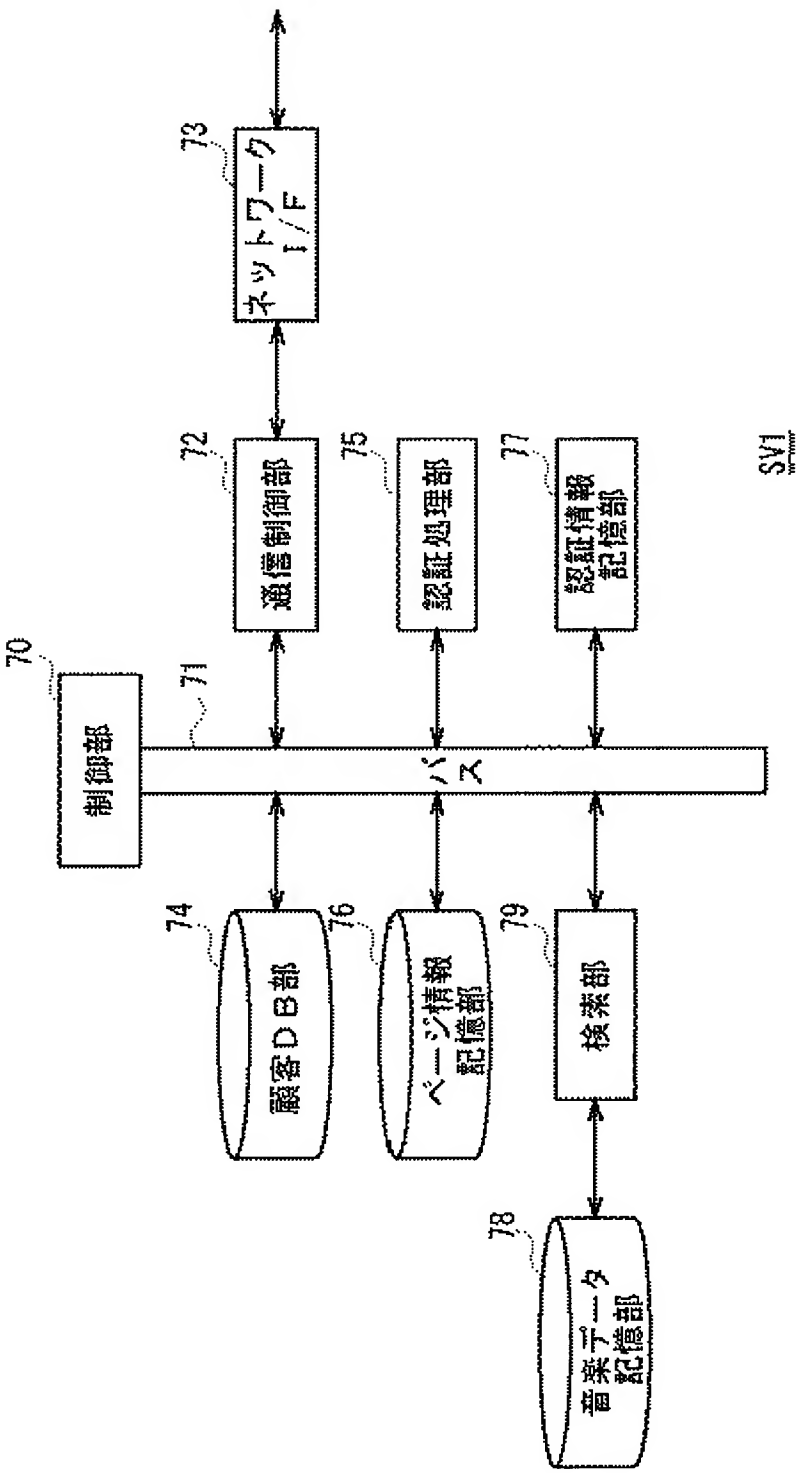

図５　音楽データ配信サーバの構成

【図６】

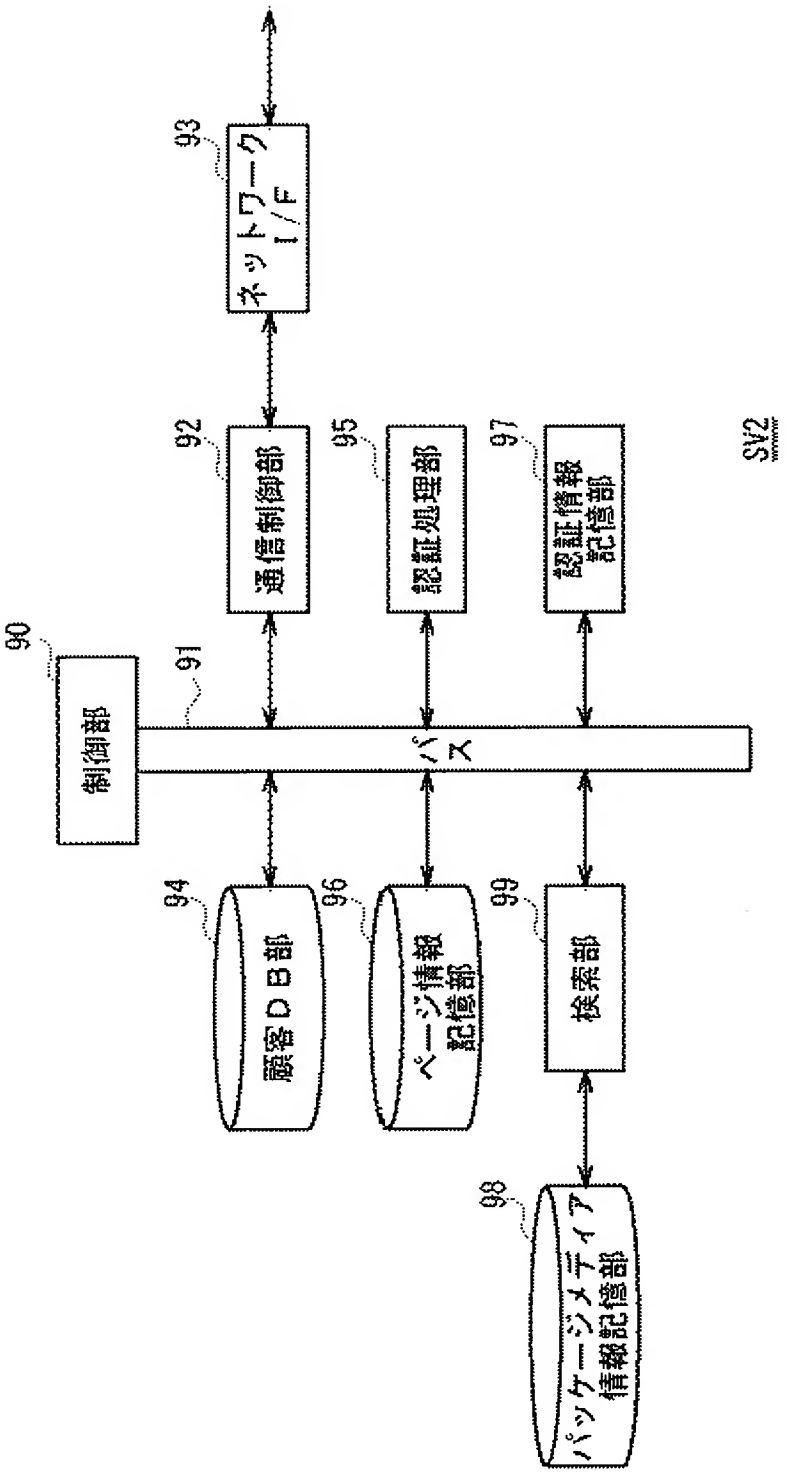

図６　物販サーバの構成

【図７】

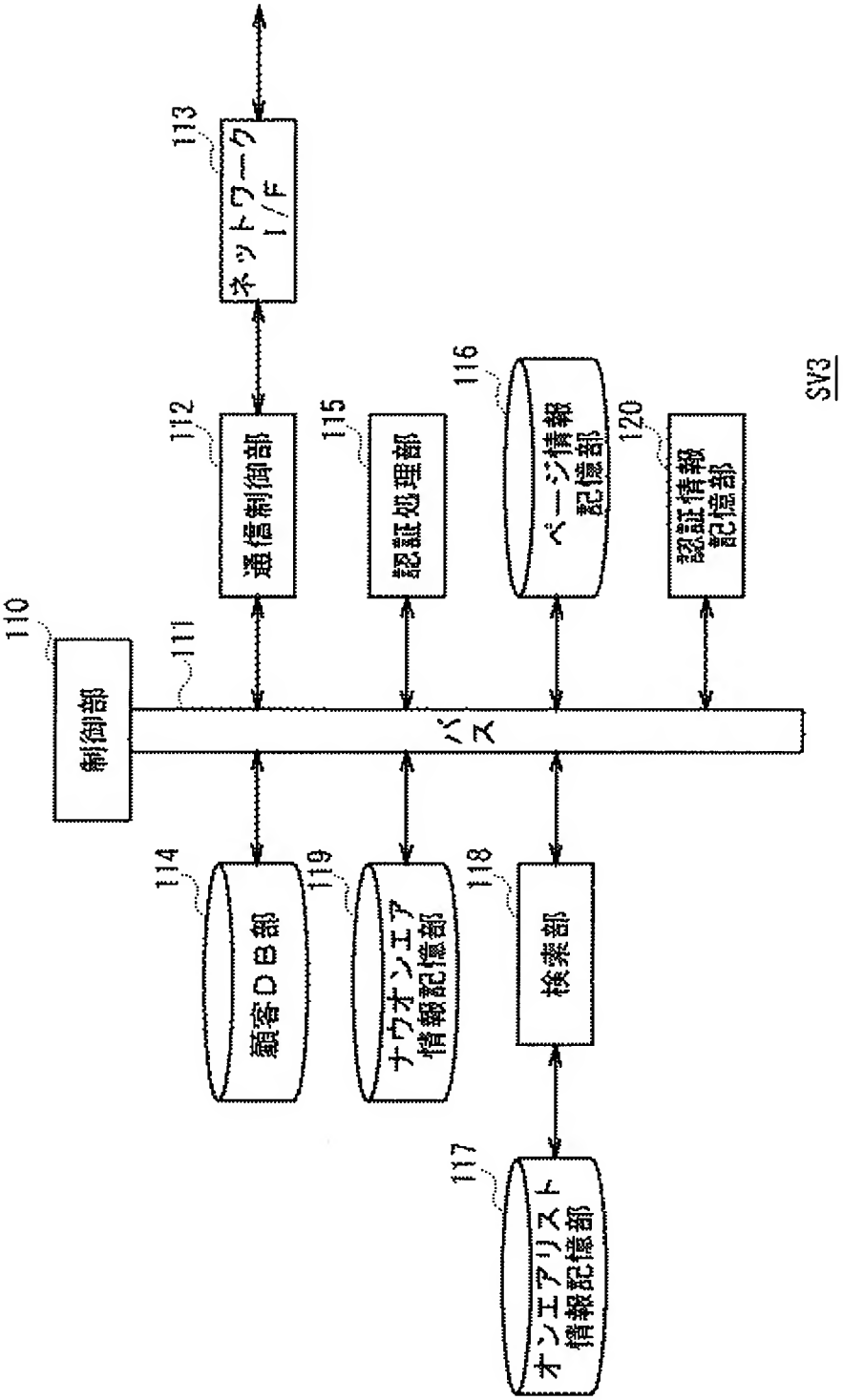

図７　ラジオ放送情報配信サーバの構成

【図８】

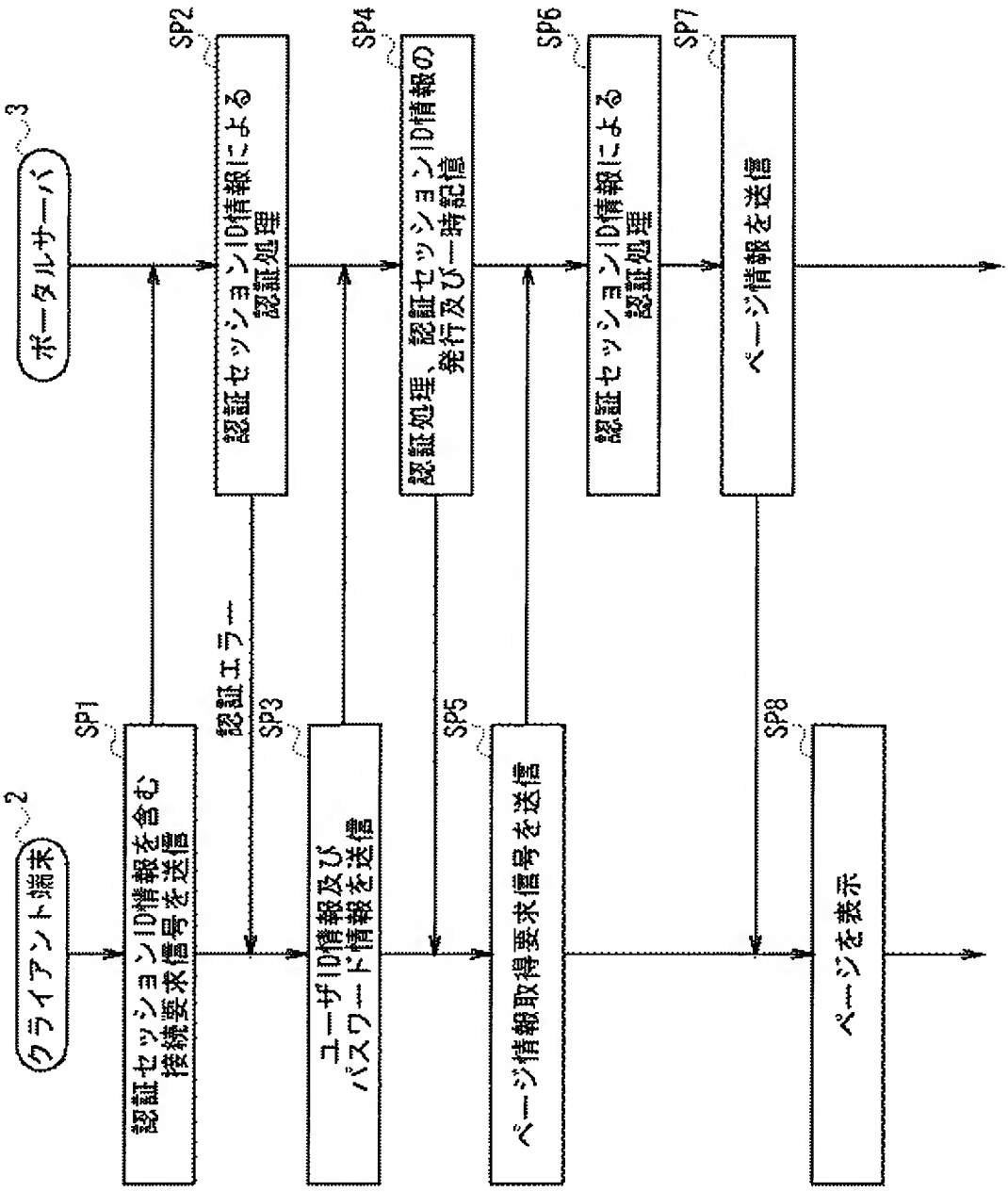

図８　クライアント端末及びポータルサーバ間のユーザ認証処理手順

【図９】

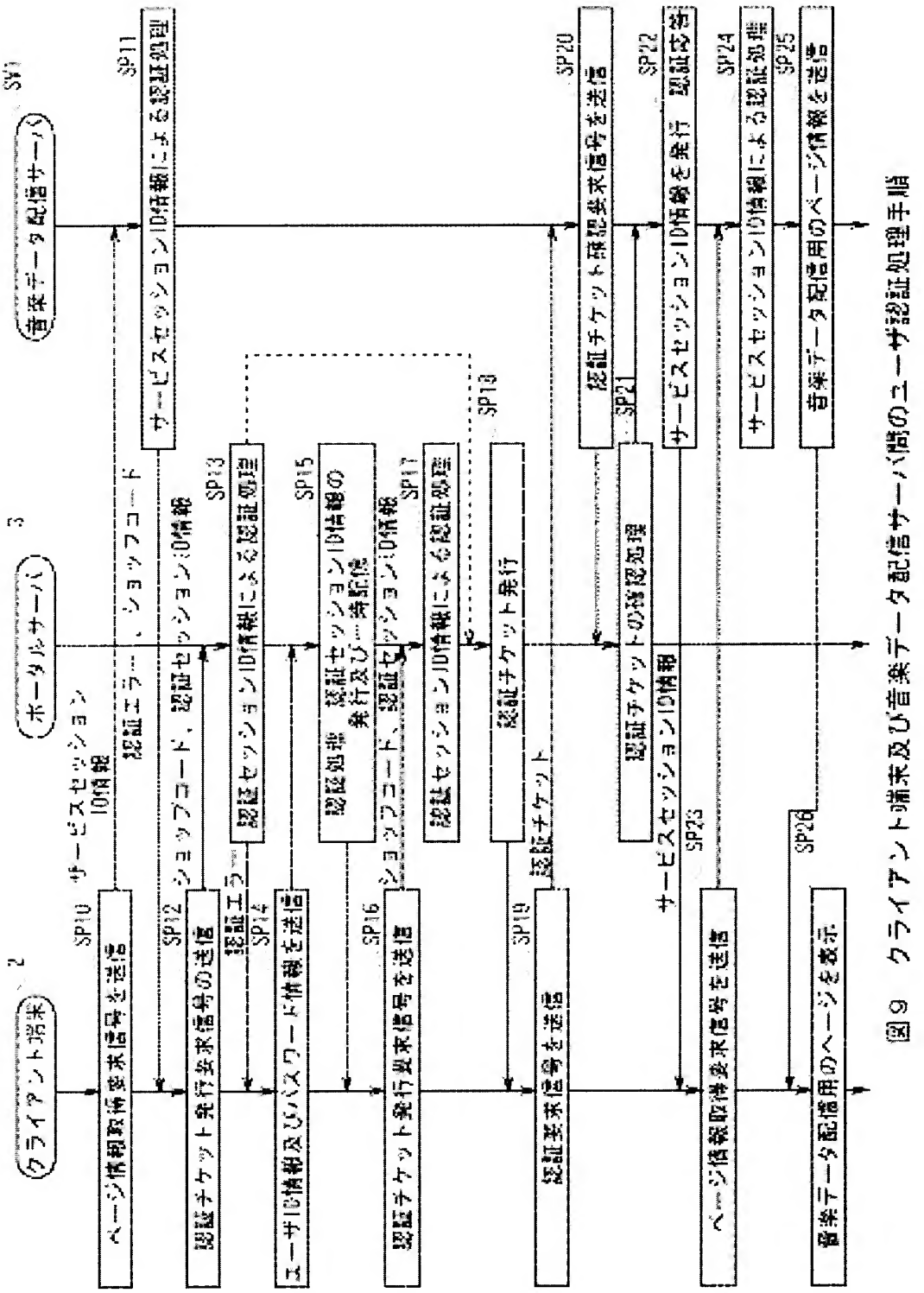

図９　クライアント端末及び音楽データ配信サーバ間のユーザ認証処理手順

【図１０】

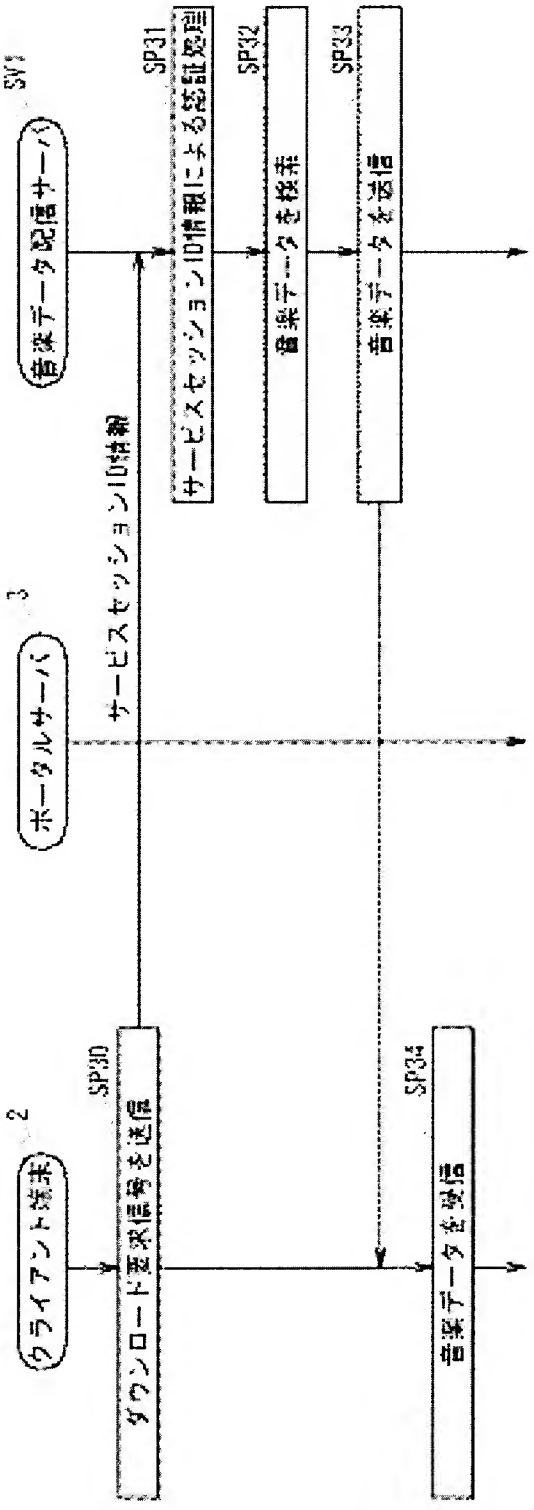

図１０　音楽データ配信サービス提供処理手順

【図１１】

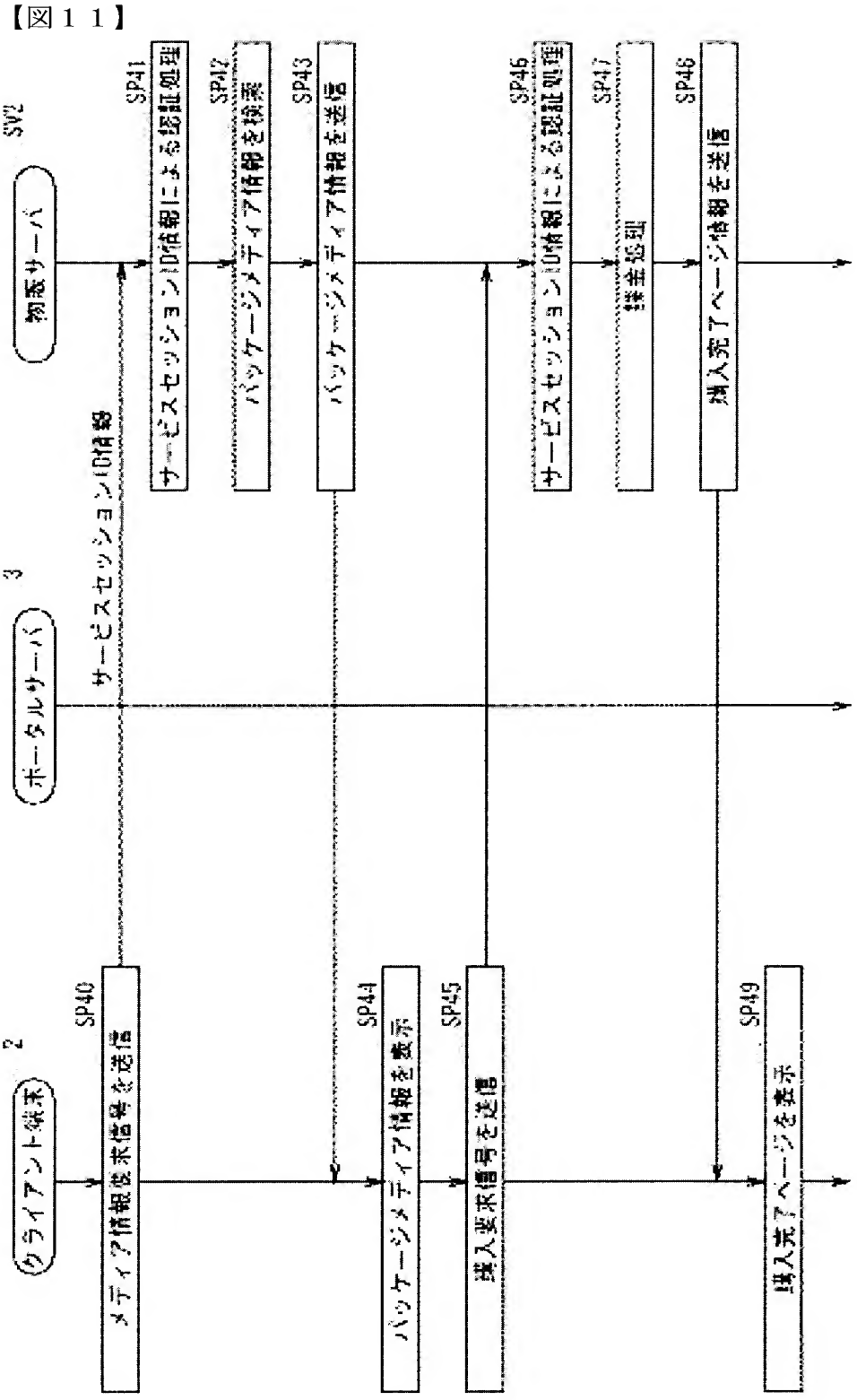

図１１　物販サービス提供処理手順

【図１２】

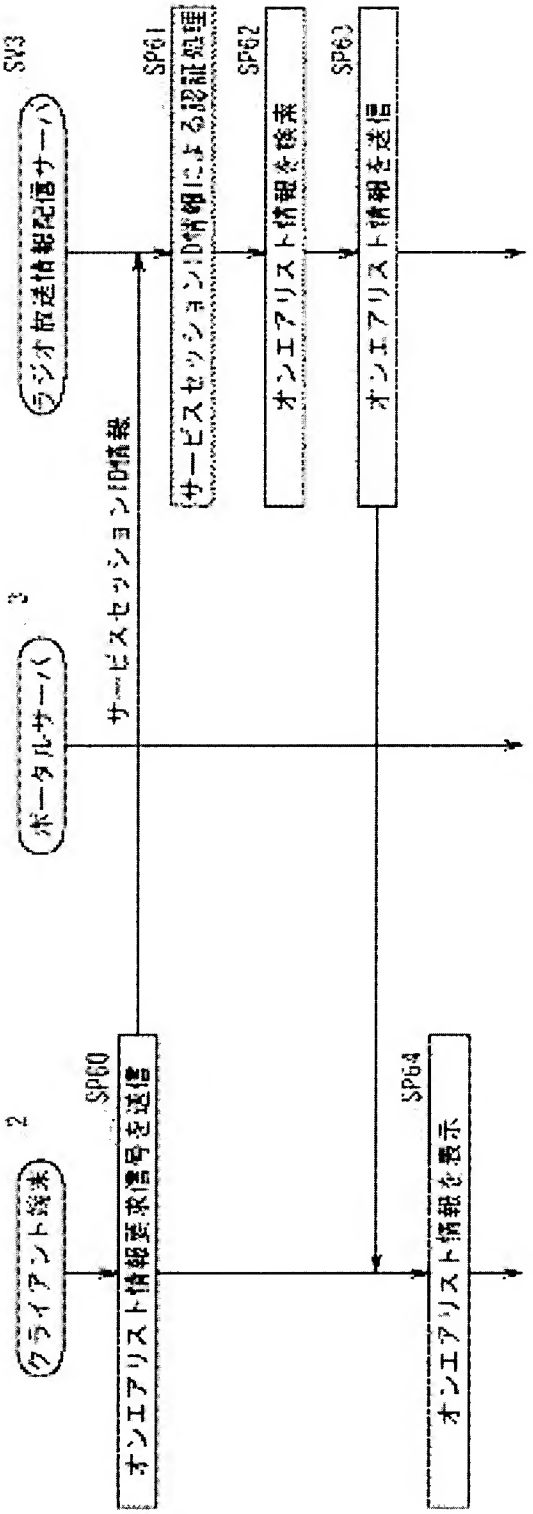

図１２　ラジオ放送情報（オンエアリスト情報）サービス提供処理手順（１）

【図１３】

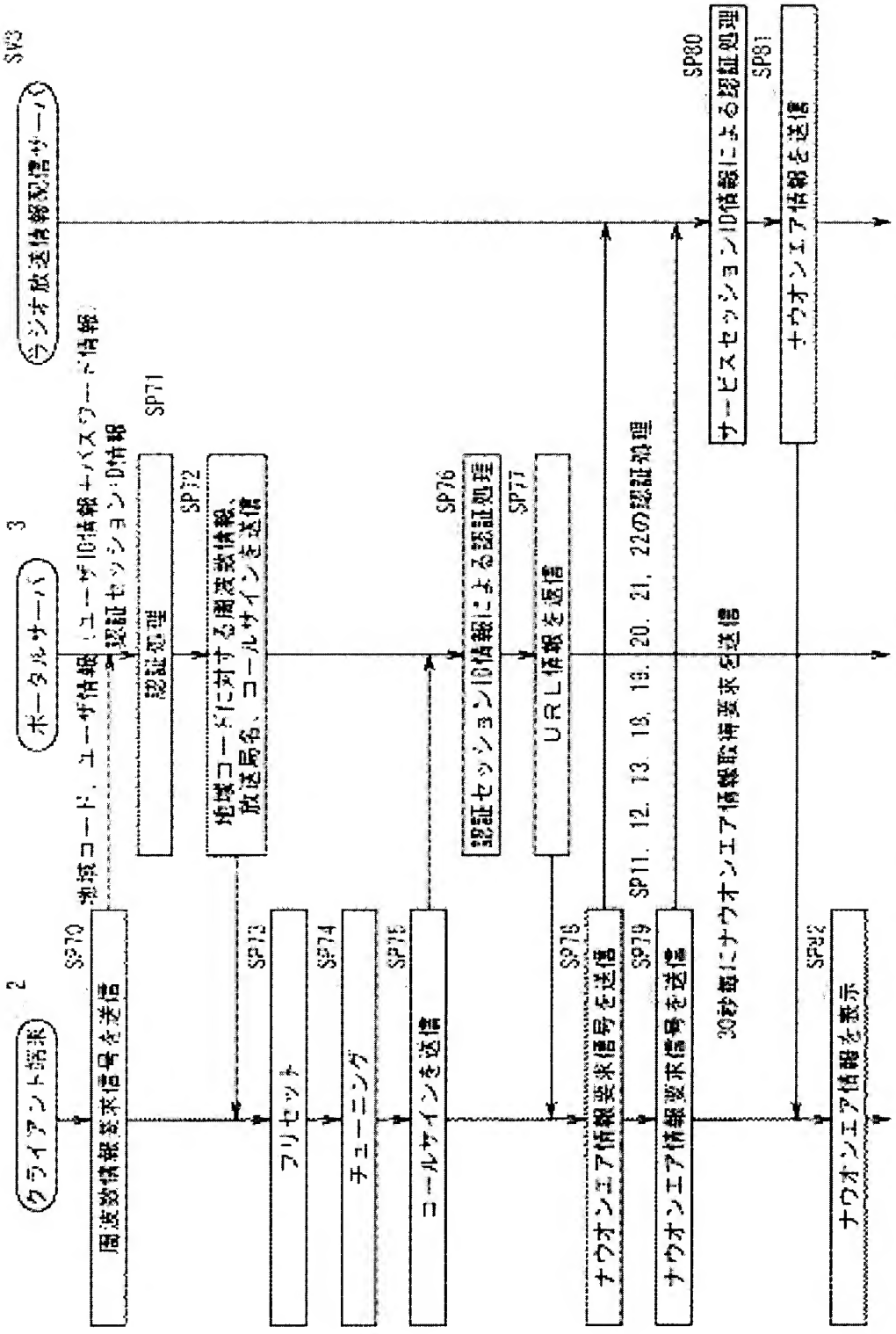

図１３　ラジオ放送情報（ナウオンエア情報）配信サービス提供処理手順（２）

【図１４】

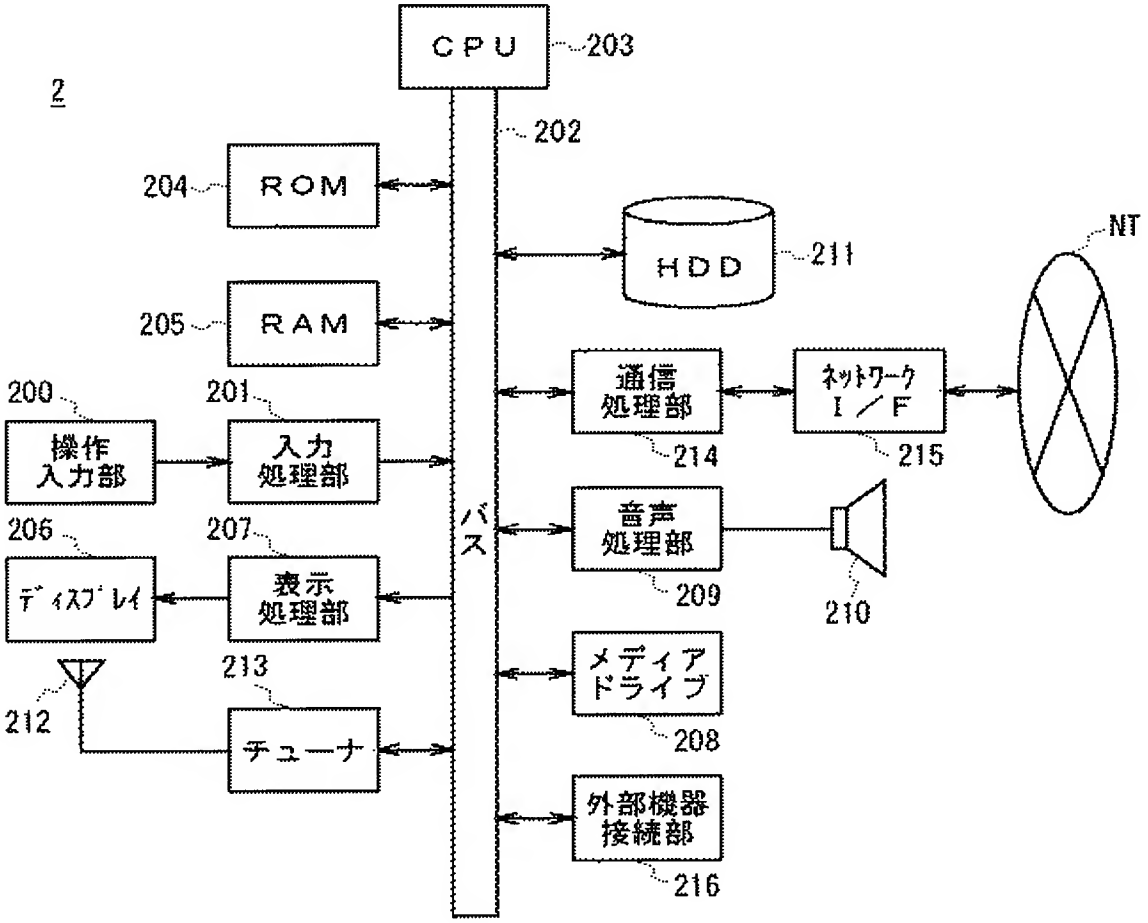

図１４　クライアント端末の回路構成

【図１５】

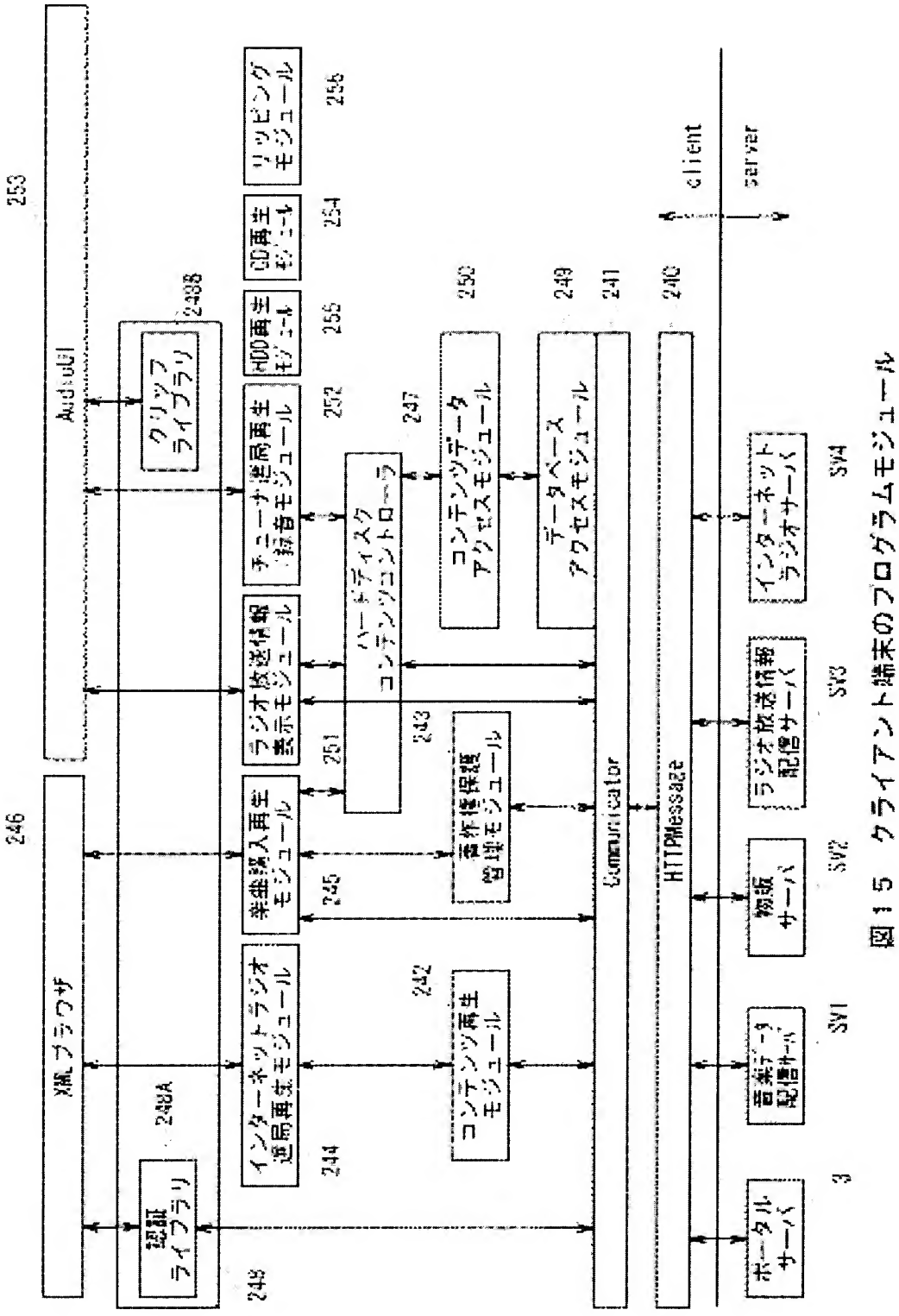

図１５　クライアント端末のプログラムモジュール

【図１６】

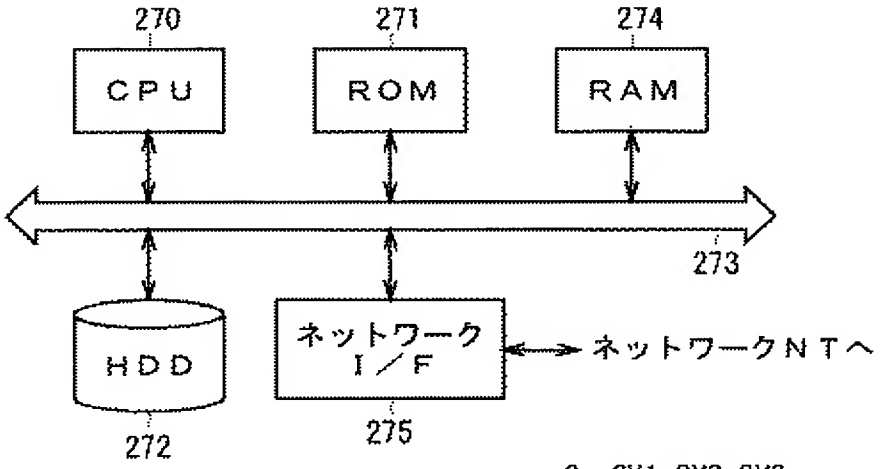

図１６　サーバの構成

【図１７】

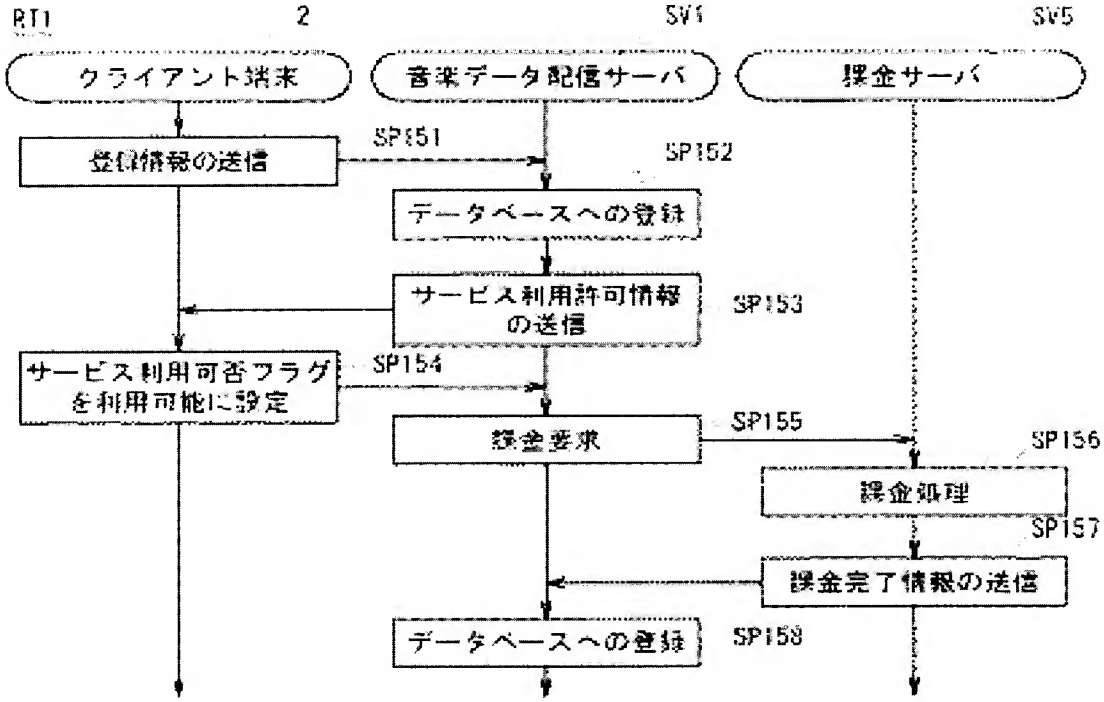

図１７　登録処理手順

【図１８】

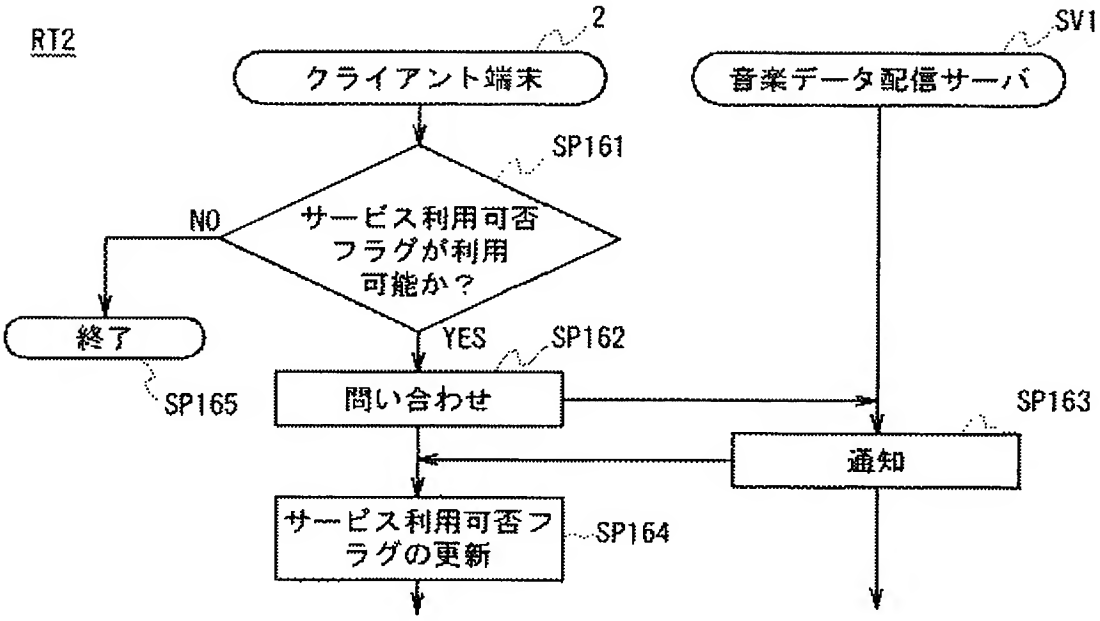

図１８　登録問い合せ処理手順

【図１９】

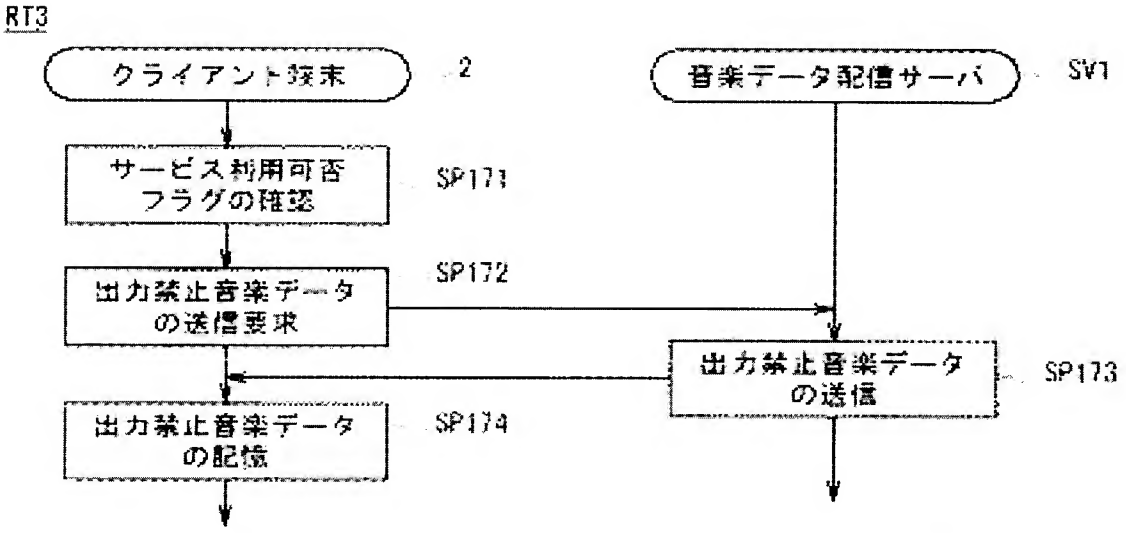

図１９　出力禁止音楽データダウンロード処理手順

【図２０】

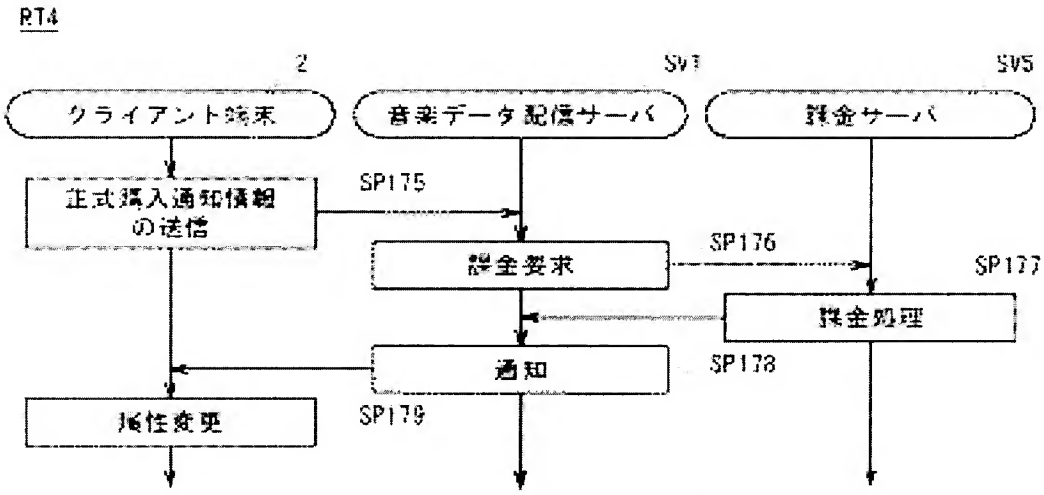

図２０　正式購入処理手順

【図２１】

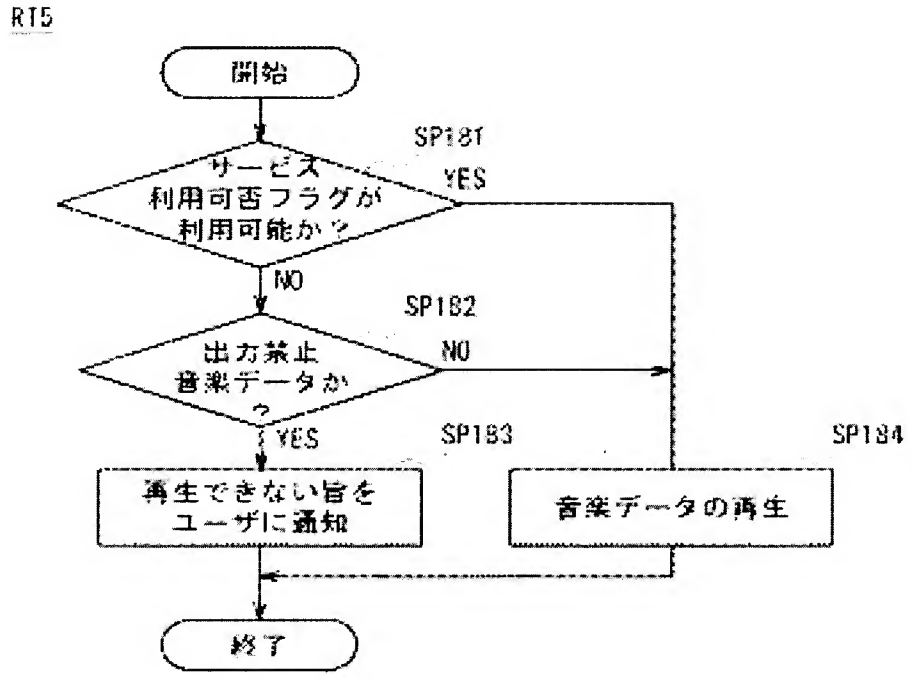

図２１　再生処理手順

【図２２】

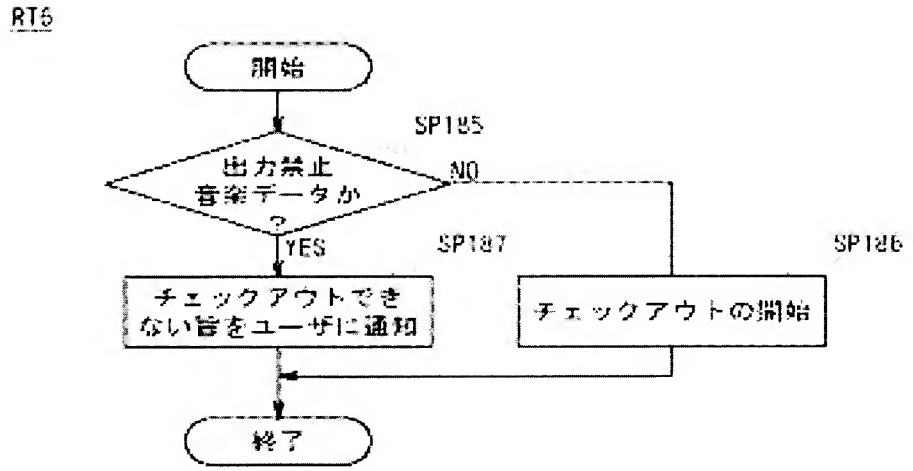

図２２　チェックアウト処理手順

【図２３】

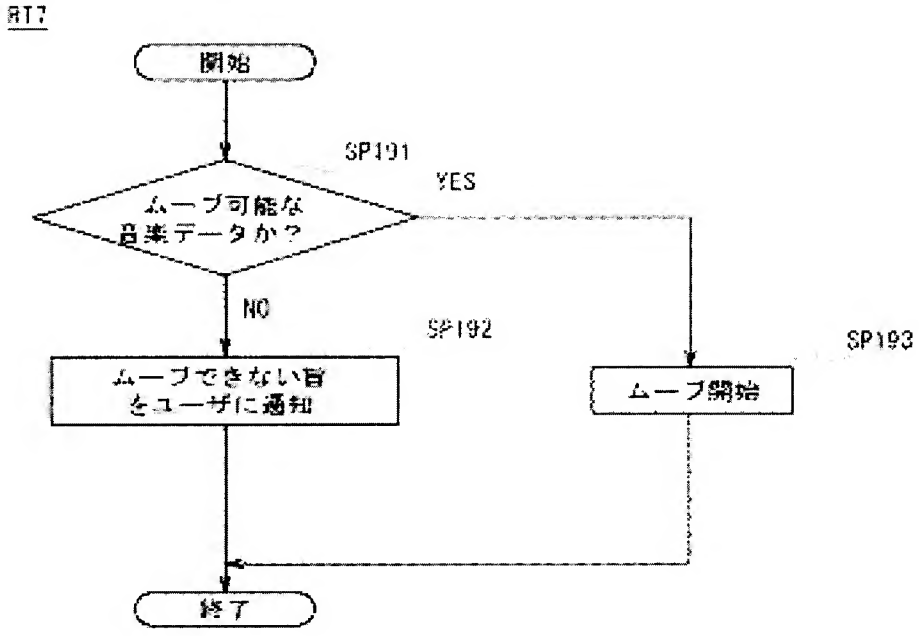

図２３　ムーブ処理手順

【書類名】図面　[NAME OF DOCUMENT] DRAWINGS

【図１】　FIGURE 1

1	Music related service provision system
2	Client terminal
3	Portal server
SV1	Music data delivery server
SV2	Product sales server
SV3	Radio broadcast information delivery server
SV4	Internet radio server
SV5	Fee-charging server
ＮＴネットワーク	NT network

音楽関連サービス提供システムの全体構成　Overall configuration of music related service provision system

【図２】　FIGURE 2

20	Operation input section
21	Input processing section
22	Bus
23	Control section
24	Display control section
25	Display section
26	Audio control section
27	Speaker
28	External recording media recording and reproducing section
29	Storage medium
30	Broadcast signal reception section
31	Tuner section
32	Communication control section
33	Network interface

34 Encoder/decoder
35 Copyright management section
36 Page information generation section
37 Authentication processing section
38 Authentication information storage section
39 Radio broadcasting display control section

クライアント端末の機能回路ブロックによる構成 Configuration of client terminal constituted of functional circuit blocks

【図３】 FIGURE 3

ディレクトリ構成 Directory configuration

【図４】 FIGURE 4

50 Control section
51 Bus
52 Communication control section
53 Network interface
54 Customer database section
55 Page information storage section
56 Authentication processing section
57 Authentication information storage section
58 Frequency information storage section
59 URL storage section

ポータルサーバの構成 Configuration of portal server

【図５】 FIGURE 5

70 Control section
71 Bus
72 Communication control section

73	Network interface
74	Customer database section
75	Authentication processing section
76	Page information storage section
77	Authentication information storage section
78	Music data storage section
79	Retrieval section
音楽データ配信サーバの構成	Configuration of music data delivery server

【図６】 FIGURE 6

90	Control section
91	Bus
92	Communication control section
93	Network interface
94	Customer database section
95	Authentication processing section
96	Page information storage section
97	Authentication information storage section
98	Package media information storage section
99	Retrieval section
物販サーバの構成	Configuration of product sales server

【図７】 FIGURE 7

110	Control section
111	Bus
112	Communication control section
113	Network interface
114	Customer database section

115 Authentication processing section
116 Page information storage section
117 On-air-list information storage section
118 Retrieval section
119 Now-on-air information storage section
120 Authentication information storage section
ラジオ放送情報配信サーバの構成 Configuration of radio broadcast information delivery server

【図８】 FIGURE 8

2 Client terminal
3 Portal server
SP1 Transmit connection request signal containing authentication session ID
SP2 Authentication processing based on authentication session ID information
SP3 Transmit user ID information and password information
SP4 Authentication processing issue authentication session ID information and temporarily store it
SP5 Transmit page information acquisition request signal
SP6 Authentication processing based on authentication session ID information
SP7 Transmit page information
SP8 Display page
認証エラー Authentication error

クライアント端末及びポータルサーバ間のユーザ認証処理手順

user authentication process procedure between client terminal and portal server

【図９】 FIGURE 9

2	Client terminal
3	Portal server
SV1	Music data delivery server
SP10	Transmit page information acquisition request signal
SP11	Authentication processing based on service session ID information
SP12	Transmit authentication ticket issuance request signal
SP13	Authentication processing based on authentication session ID information
SP14	Transmit user ID information and password information
SP15	Authentication processing, issue authentication session ID information and temporarily store it
SP16	Transmit authentication ticket issuance request signal
SP17	Authentication processing based on authentication session ID information
SP18	Issue authentication ticket
SP19	Transmit authentication request signal
SP20	Transmit authentication ticket conformation request signal
SP21	Conformation processing for authentication ticket
SP22	Issue service session ID information, authentication answering
SP23	Transmit page information acquisition request signal
SP24	Authentication processing based on service session ID information
SP25	Transmit music-data-distribution page information
SP26	Display music-data-distribution page information

サービスセッションID情報　Service session ID information

認証エラー、ショップコード　Authentication error, shop code

ショップコード、認証セッションID情報　Shop code, authentication session ID information

認証チケット　Authentication ticket

クライアント端末及び音楽データ配信サーバ間のユーザ認証処理手順

User authentication process procedure between client terminal music data delivery server

【図１０】　FIGURE 10

2	Client server
3	Portal server
SV1	music data delivery server
SP30	Transmit download request signal
SP31	Authentication processing based on service session ID information
SP32	Search music data
SP33	Transmit music data
SP34	Receive music data

サービスセッションID情報　Service session ID information

音楽データ配信サービス提供処理手順　Music data distribution service provision process procedure

【図１１】　FIGURE 11

2	Client server
3	Portal server
SV2	Product sales server

SP40 Transmit media information request signal
SP41 Authentication processing based on service session ID information
SP42 Search package media information
SP43 Transmit package media information
SP44 Display package media information
SP45 Transmit purchase request signal
SP46 Authentication processing based on service session ID information
SP47 Charging process
SP48 Transmit purchase completion page information
SP49 Display purchase completion page
サービスセッションID情報 Service session ID information
物販サービス提供処理手順 Product sales service provision process procedure

【図１２】 FIGURE 12

2 Client server
3 Portal server
SV3 Radio broadcast information delivery server
SP60 Transmit on-air-list information request signal
SP61 Authentication processing based on service session ID information
SP62 Search on-air-list information
SP63 Transmit on-air-list information
SP64 Display on-air-list information
サービスセッションＩＤ情報 Service session ID information
ラジオ放送情報（オンエアリスト情報）サービス提供処理手順（１）
Radio broadcast information (on-air list information) distribution service

provision process procedure (1)

【図１３】 FIGURE 13

2 Client server

3 Portal server

SV3 Radio broadcast information delivery server

SP70 Transmit frequency information request signal

SP71 Authentication processing

SP72 Transmit frequency information, broadcast station name, and call sign corresponding to area code

SP73 Preset

SP74 Tuning

SP75 Transmit call sign

SP76 Authentication processing based on authentication session ID information

SP77 Transmit URL information

SP78 Transmit now-on-air information request signal

SP79 Transmit now-on-air information request signal

SP80 Authentication processing based on service session ID information

SP81 Transmit now-on-air information

SP82 Display now-on-air information

地域コード、ユーザ情報（ユーザ ID＋パスワード情報） Area code, user information (user ID + password information)

認証セッション ID 情報 Authentication session ID information

SP11、12、13、18、19、20、21、22 の認証処理

Authentication processing of SP11, 12, 13, 18, 19, 20, 21 and 22

３０秒毎にナウオンエア情報取得要求を送信 Transmit now-on-air information acquisition request every 30 seconds

ラジオ放送情報（ナウオンエア情報）サービス提供処理手順（２）

Radio broadcast information (now-on-air information) distribution service provision process procedure (2)

【図１４】 FIGURE 14

200	Operation input section
201	Input processing section
202	Bus
206	Display
207	Display processing section
208	Media drive
209	Audio processing section
213	Tuner
214	Communication processing section
215	Network I/F
216	External device connection section

クライアント端末の回路構成 Circuit configuration of client terminal

【図１５】 FIGURE 15

3	Portal server
242	Content reproduction module
243	Copyright protection information management module
244	Internet radio channel selection/reproduction module
245	Music purchase/reproduction module
246	XML browser
247	Hard disk content controller
248A	Authentication library
248B	Clip library
249	Database access module

250	Content data access module
251	Hard disk content controller
252	HDD reproduction module
254	CD reproduction module
255	HDD reproduction module
256	Ripping module
SV1	Music data delivery server
SV2	Product sales server
SV3	Radio broadcast information delivery server
SV4	Internet radio server

クライアント端末のプログラムモジュール　Program modules of client terminal

【図１６】　FIGURE 16

275	Network I/F
ネットワーク NT へ	To network NT

サーバの構成　Configuration of server

【図１７】　FIGURE 17

2	Client terminal
SV1	Music data delivery server
SV5	Fee-charging server
SP151	Transmit registration information
SP152	Register with database
SP153	Transmit service usage permission information
SP154	Set service available/unavailable flag to available
SP155	Request fee-charging process
SP156	Fee-charging process
SP157	Transmit fee-charging completion information

SP158 Register with database

登録処理手順 Registration process procedure

【図１８】 FIGURE 18

2 Client terminal

SV1 Music data delivery server

SP161 Service available/unavailable flag is available?

SP162 Inquiry

SP163 Notify

SP164 Update service available/unavailable flag

SP165 End

登録問い合わせ手順 Registration inquiry process procedure

【図１９】 FIGURE 19

2 Client terminal

SV1 Music data delivery server

SP171 Confirm service available/unavailable flag

SP172 Request output-prohibited music data

SP173 Transmit output-prohibited music data

SP174 Store output-prohibited music data

出力禁止音楽データダウンロード処理手順 Output-prohibited music data download process procedure

【図２０】 FIGURE 20

2 Client terminal

SV1 Music data delivery server

SV5 Fee-charging server

SP175 Transmit formal purchase notification information

SP176 Request fee-charging process

SP177	Fee-charging process
SP178	Notify
SP179	Change attribute information
正式購入処理手順	Formal purchase process procedure

【図２１】 FIGURE 21

SP181	Service available/unavailable flag is available?
SP182	Output-prohibited music data?
SP183	Notify user music data is un-reproducible
SP184	Reproduce music data
開始	Start
終了	End
再生処理手順	Reproduction process procedure

【図２２】 FIGURE 22

SP185	Output-prohibited music data?
SP186	Start checkout
SP187	Notify user checkout is unavailable
開始	Start
終了	End
チェックアウト処理手順	Checkout process procedure

【図２３】 FIGURE 23

SP191	Move-able music data?
SP192	Notify user move is available
SP193	Start move
開始	Start
終了	End
ムーブ処理手順	Move process procedure

[NAME OF DOCUMENT] ABSTRACT

[SUMMARY]

[OBJECT] To acquire content data much more efficiently.

[SOLVING MEANS] The music data (output-prohibited music data) downloaded to the client terminal 2 cannot be output until it is formally purchased. In addition, this music data can be reproduced only while the user of the client terminal 2 is being registered to pay the predetermined fixed charges. Therefore, this prevents from hurting the interests of copyright owners or the like. And the client terminal 2 can acquire music data more efficiently, since it does not have to repeat a process of downloading music data.

[SELECTED DRAWING] Figure 1